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FIG. 1. SEATTLE MUNICIPAL GRAVEL WASHING PLANT. GENERAL VIEW.

## MUNICIPAL SAND AND GRAVEL WASHING PLANT

**Owned and Operated by City of Seattle, Washington—Eight Hundred Cubic Yards of Gravel Can Be Removed by Hydraulic Jets, Screened and Washed in Eight Hours—Detail of Mechanism.**

BY CLAUDE A. OSIER.

Lying about forty miles southeast of the city of Seattle in the foothills of the Cascade Mountains is a municipal sand and gravel washer, owned by that city, the only one owned by any municipality on the Pacific coast or in the Pacific northwest, as far as is known. Although the plant has not been in operation very long, it has demonstrated that it is well worth, many times over, the money which was expended in building it. Furthermore, it will increase in value as the years roll by, as the city of Seattle is large and growing, streets and walks are being constructed continually and the demand for sand and gravel for these improvements (not mentioning the buildings being erected) to date far exceeds the supply. Other cities in this vicinity also need these materials, and when this plant is prepared to meet corporation competition it is believed that a large and profitable business can be developed.

The site is near the municipal power plant at Cedar Falls, where the electrical energy for light, heat and power for the city is generated. (This was described briefly in the issue of August 7, 1913.) Authorities assert that an unlimited supply of sand and gravel will be available for years to come within easy working dis-

tance of the plant. The product which is being washed at this time is being used in the construction of the masonry dam for the power plant, but when this is completed the material will be shipped to Seattle for use on streets and other improvements.

Figure 1 is a general view of the gravel pits, flumes and sizing and storage plants, and gives an idea of the extent of the work and the preparation which was necessary in order to handle the material to the best advantage.

At the left of the photograph is seen the old washing plant, used for preparing the materials for making the concrete blocks which are used in building the dam. (By the use of these blocks no wooden forms are required in the construction of the dam proper, the concrete blocks being carried up on each face and taking the place of forms in confining the concrete placed in the body of the dam. As the blocks are made of a very dense mixture, the face of the dam is exceedingly dense, while the remainder is of a more porous mixture, thereby relieving the concrete of internal pressure.)

Beyond the flumes of the old plant are seen the flumes of the new plant. The lower section delivers directly to the foot of the elevator of the washing plant and is

the flume in which the sand and gravel are carried, the upper flume being for the purpose of disposing of any considerable quantities of clay or loam removed in stripping the top of the bank.

The gravel and sand are hydraulicked from the bank, which is shown on the left of Fig. 1, by the means of "hydraulic giants." Water is supplied at about ninety pounds pressure at the nozzle, the water with the sand and gravel being collected in fan-shaped flume heads, which converge to the size of the flume at the discharge end. The main flume is 18 inches wide, the sides being plain 2-inch plank, the bottom lined or covered with blocks 2 inches long, having the grain set vertically, thus making the end grain of the wood the wearing surface.

The mixture of water, sand and gravel is delivered directly to the foot of the inclined elevator, which carries the material to the washing and sizing screens, located over the storage bins. The elevator is of the continuous bucket type, with 24 by 18 by 10-inch buckets of  $\frac{1}{4}$ -inch steel plate, carried on double-strand Ley bushed chain, the upper rim being supported on 12-inch diameter chilled face rollers, the down run swinging free. The head of the elevator is practically 60 feet above the level of the ground at the bunkers, the distance from center to center of head and tail sprockets being 68 feet. The elevator is on an incline of 60 degrees from the horizontal.

The head shaft of this elevator is 4 15/16 inches in diameter, equipped with a 36-inch diameter chilled face traction wheel, the foot being provided with chilled face and teeth sprockets. The foot shaft is carried in adjusting boxes of special design, the bearings being connected with a fresh water supply which keeps a stream of fresh water, under pressure, flowing through them around the shaft, thus effectually preventing the sand entering these bearings and cutting them out. The elevator is driven from the main countershaft through a No. 82 riveted drive chain, and has a maximum capacity of 100 cubic yards per hour.

From the head of the elevator the material is led by a steel-lined chute to the first washing screen. This screen is provided with  $2\frac{1}{2}$ -inch perforations, all material passing over the screen falling into the first bin,

while all material passing through the perforations goes to the second screen with the water. This screen is provided with  $\frac{1}{4}$ -inch perforations, and takes out the sand, the fine gravel falling into the second bin, the sand and water going to the settling box, where it receives a final washing with fresh water, after which it is deposited in the sand bin.

There is one settling box with two compartments, water and sand being allowed to flow into one compartment until it is filled with sand, the muddy water passing out at the top through an overflow spout. The stream is then switched to the second box and fresh water forced upward through the first box from perforated pipes in the bottom, much as in a hydraulic classifier or filter sand washer. When all traces of loam have disappeared, valves are opened in the bottom of the box and the clean sand falls into the bin below.

The sizing and washing screens are of the Gilbert type, and consist of a perforated jacket in the shape of a truncated cone 30 inches in diameter at the small end, 54 inches in diameter at the large end, and 72 inches long. The jacket is held at the smaller end, the other end being open; the inside is free from all arms or spiders and the jacket is bolted to the rim, a heavy cast-iron disc, at the smaller end, and the driving shaft keyed at the hub. The screen projects beyond its bearings and supports, with the large end of the cone outward. A flume or trough carries the material down the slope under the upper side of the jacket, discharging same at the back near the small end. The material, being screened, naturally works toward the larger end of the cone, where the oversize is discharged.

The screens are driven through No. 78 riveted drive chain from a common countershaft; power is supplied by a 40-h.p. alternating current motor, which is of sufficient size to drive in addition a small crusher mounted over the bin for crushing the oversize from the first screen.

The screened sand and gravel are drawn through covered steel plate chutes, provided with lever-operated end gates, into the tramway buckets, which carry them to the discharge station, whence they are carried by 16-inch belt conveyor to the mixing bins. Fig. 3 shows the general arrangement of the discharge tower, belt conveyor

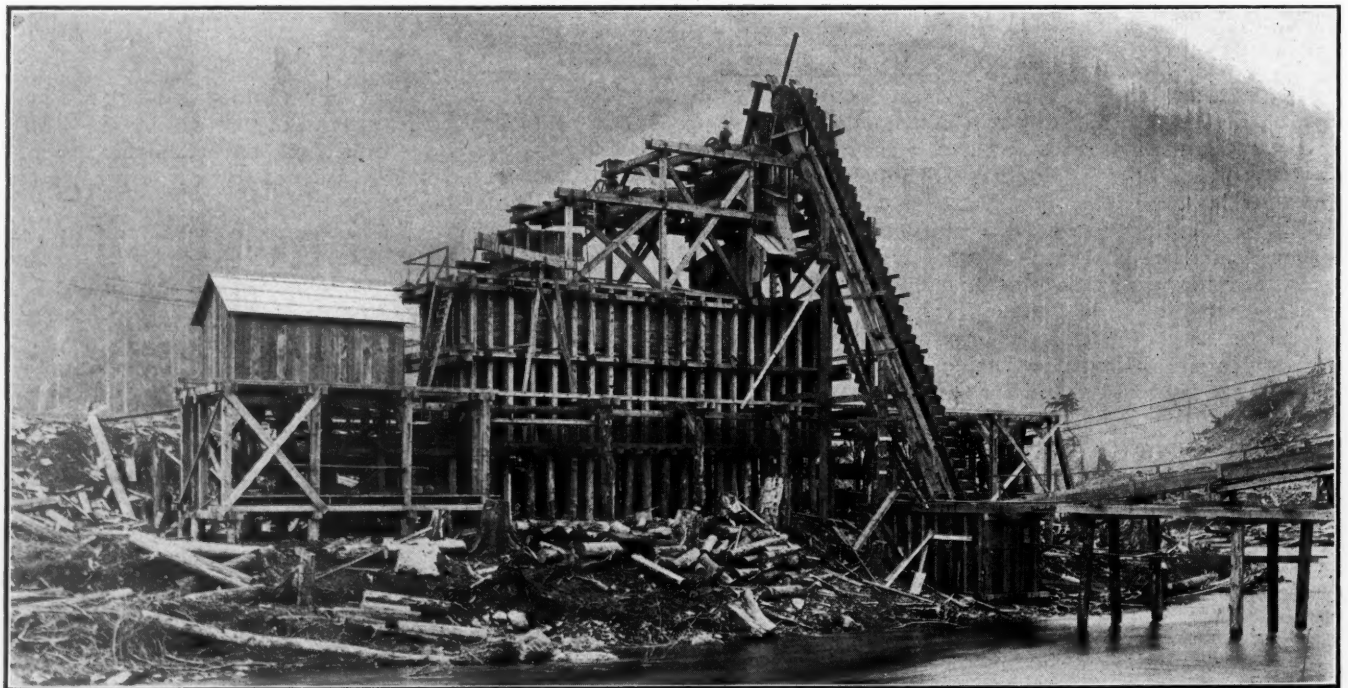


FIG. 2. BUNKER FOR ELEVATOR.



and mixing bins partially completed. The bin, shown on the right of the picture, is intended to be extended the full length of the horizontal run of the conveyor, the tripper enabling the sand and gravel to be discharged into their respective compartments. From these compartments the sand and gravel are fed to the mixers underneath, through measuring chutes, the cement being added from its feed hopper under the bin proper. The bottom of this sand and gravel bin is made watertight, so as to make the space underneath available for cement storage.

The feed chutes are of steel plate, the hoppers and undercut gates of cast iron. The flow is regulated by means of the undercut gates and baffle plates set in the front of the chutes and allowing only a certain quantity to feed to the belt. The chutes are pivoted to the hoppers, and when loading from the back hoppers the front chutes may be lifted up and fastened out of the way so as not to interfere with the material on the belt conveyor.

The cableway extends beyond the discharge tower for a distance of several hundred feet, for the purpose of sand and gravel storage. Here it is proposed that the sand and gravel be dumped automatically onto a pile 300 feet long and 40 feet high. Underneath this pile is a tunnel 6 feet high and 8 feet wide, with sides of cribbing and the top of 12-inch timbers, provided with chutes leading to a 16-inch belt conveyor. This conveyor runs the full length of the pile and discharges into an inclined elevator of the continuous bucket type, composed of two strands of Ley steel bushed chain, on which are mounted 10 by 16 by 18-inch overlapping buckets, made of  $\frac{1}{4}$ -inch steel plate. The carrying run is supported on chilled face idlers, the return hanging free.

With two "hydraulic giants" working, one man tending motors and machinery, one man on the screens and sand boxes, and four men on the tramway, 800 yards of material in the solid can be hydraulicked, washed and screened in eight hours. The cost of the machinery in the plant approximated \$5,500, f. o. b. Cedar Falls. The plant was constructed by the city of Seattle with day labor.

The general layout of the system was made by the engineering department of the city of Seattle, under the personal direction of T. H. Carver and J. H. Quense. The operation of the plant is under the direction of C. J. Moore, engineer in direct charge of the work at the dam.

The details of the washing plant, storage plant, mixing plant and conveyors were designed by the Puget Sound Machinery Depot, Allen F. Blair, mining engineer, which company also supplied the elevating, conveying, screening and transmission machinery.

#### CONCRETING IN FREEZING WEATHER.

A paper, entitled "The Problems of the Contractor," was read before the Boston Society of Civil Engineers by L. C. Wason, president of the Aberthaw Construction Company, which deals with the relations between the contractor on the one side and the owner, engineer and inspector on the other, giving many valuable suggestions for securing better work by cordial relations between them. In the latter part of the paper (copies of which can be obtained from the Aberthaw Construction Company, of Boston) is a summary of the methods of systematizing concrete work employed by that company, and suggestions for handling such work. One of these is timely, referring to concrete work in freezing weather, and applicable to sewer, street or other work, as well as to buildings. This is as follows:

The aggregates must be free from frost when mixed. A live steam pipe can be shoved into the sand pile, the escaping steam heating it and removing all frost. The same may be done with the stone, but a canvas should be thrown over the top of the pile to retain the heat which more readily escapes. Where a considerable amount of heating is provided for in advance, steam pipes are laid on the ground, and stone as received is dumped upon them. Then there is a canvas thrown over to prevent storms getting into the pile, and to retain the heat. The frost is thus easily and economically removed.

Salt is frequently used in the water to lower its freezing point. It is seldom worth while to heat the water itself. Little care need be used to prevent mass concrete from freezing, as the frost will usually only strike to a depth of about one inch. Buildings are inclosed with tarpaulin tied onto an outside staging, and the inclosed space is heated with salamanders burning coke. Sometimes it is possible to use steam.

Frost is removed from form work by the use of salt and steam, and if the concrete surface is left rough it is common to sprinkle the top surface with salt to prevent

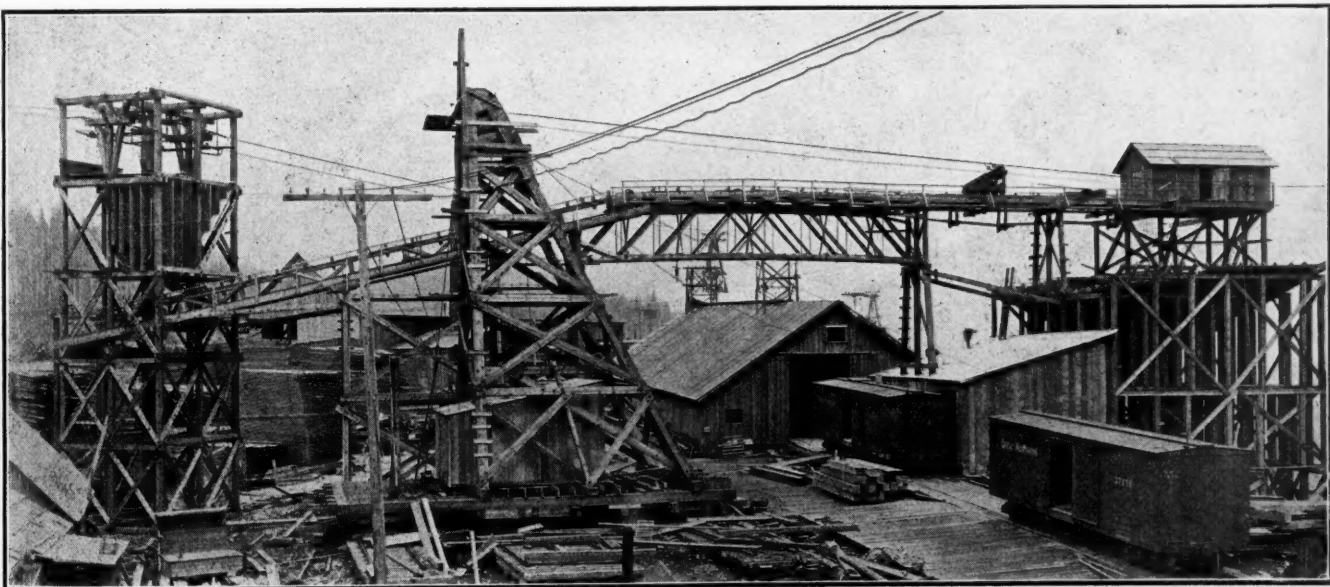


FIG. 3. UPPER TERMINALS OF TRAMWAY.

Intermediate discharge tower on the left; tripper and mixing bin on the right; belt conveyor in the center.

freezing. In winter it is very common to put the finish on as a separate operation, after building is inclosed, and not as an integral part of the construction, on account of the danger of freezing. When it is put on, it must be kept from freezing for the first forty-eight hours.

The expense of protection against the weather is not very great, and good results can be so surely guaranteed that it is not usual for the writer ever to discontinue work on account of cold weather.

Occasionally it is necessary to make some provision for the protection of the men. Shelters or wind-shields are built in front of the benches where carpenters are making up forms, as well as around the men at the concrete mixer, whose work does not necessarily keep them warm. Where excavation is going on in the open it is expedient to have a building with a good fire where the men can warm themselves when necessary; and on a few jobs it has proved to be wise to furnish hot coffee free in these shelters.

#### PIPE THAWING OUTFIT.

An electric thawing plant carried on a motor truck is used by the Columbus, O., water works for thawing water pipes. It can be transported readily to the danger point and put to efficient use on very short notice. The outfit consists of a 50-h.p. engine operating an electric generator and a drum carrying two lengths of cable, each 210 feet in length, for making taps. For making contact on hydrants and on any size pipe from three-eighths of an inch to two and a half inches, a number of bronze clamps are carried, together with hand nuts, etc. The method of thawing an underground pipe is by including it in an electric circuit, which results in rapid melting of the ice next to the inner surface of the pipe; after that the flow of the water helps the thawing process until the pipe is completely clear. The capacity of this portable outfit is the melting of twelve pounds of ice a minute. It is manufactured by the General Motors Company.

## NEWARK'S NEW BATHHOUSE

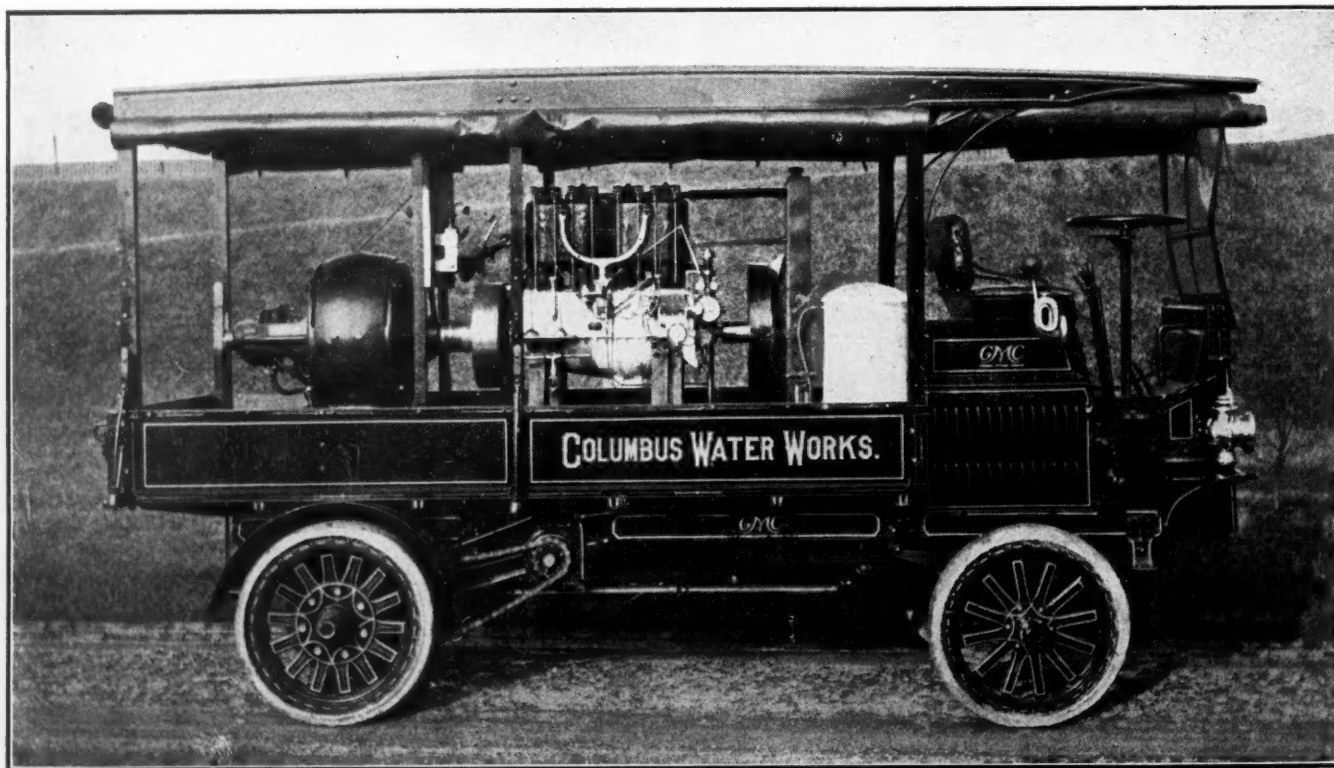
**Contains Seventy Bathing Compartments for Men,  
Twenty-Seven for Women and Two for Babies—  
Plumbing, Lighting and Ventilation**

BY RICHARD W. ERLER.\*

The city of Newark, N. J., with a population of nearly 400,000, has just completed its first up-to-date bathhouse. It already had three of the old-fashioned type which were built fifteen to twenty years ago; but some five or six years ago certain of the citizens, recognizing that Newark was behind the other cities of the country in this respect, formed an organization called the "Newark Public Bath Improvement Association," of which Mrs. F. C. Jacobson was chosen president. After a campaign of education, this organization convinced the officials of the city that a modern bathhouse was a necessity, the president of the Board of Works being the first to recognize this and afterwards assisting the society in convincing the other members of the Board. Through the combined efforts of the mayor and city council and this association, a bill was obtained from the 1911 legislature authorizing the city to spend \$250,000 for bathhouses.

The writer was selected to prepare plans for a bathhouse, and associated himself with Werner & Windolph, who had had experience in this class of designing. The Finance Committee of the Common Council issued bonds for \$75,000 for the bathhouse. The city already owned a plot of land on Clayton street which had been suggested as a location for the new bathhouse, but it was found to be too small, and not centrally located with reference to the congested district, so the Public Bath Association again labored until it obtained a sufficient sum to insure the best site and a perfectly sanitary building. The association had a survey made of the section of the city in question, and secretly consulted disinterested persons qualified to judge of the

\*Architect of Newark, N. J.



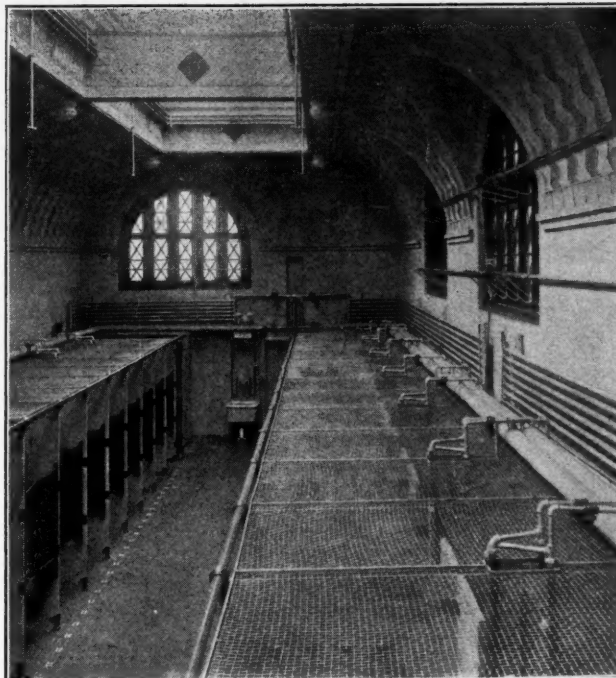
MOTOR TRUCK CARRYING OUTFIT FOR THAWING WATER PIPES.



relative merits of the several sites in contemplation. When a certain corner was finally decided upon, it secured options on the several parcels available and then submitted its decisions and suggestions, together with the options, to the Board of Works. In this way it got a line on the price of the property before it became known that it was wanted for public purposes. Political and real estate interests vigorously opposed the selection of this site, and condemnation proceedings had to be resorted to in the case of one or two parcels. However, the city finally got the very best site and saved money on the transaction.

Plans were made to suit the location and were accepted after being passed upon by the Board of Works and the Engineering Department. The building which was constructed after these plans is located in the very heart of the Jewish section of Newark where, within a radius of one mile, there are upwards of 40,000 people. The building is of a pronounced American Renaissance style, in red rough texture brick, with limestone, marble and tile trimmings, and resting on a pink Milford granite base. There is plenty of light and air all around with additional light from above. The grounds are neatly graded and sodded, and a fine artificial stone sidewalk on the two fronts harmonizes with the rest of the building. Resting on the sidewalk at both the upper and lower ends of building on Montgomery street, are two lamp standards, with the words "Newark Public Bath" cut out, with white glass background and lighted at night with electricity to carry out the same effect.

At the right is the men's entrance to a waiting room, and at the left the women's. The women's waiting room is separated from the men's by the office of the superintendent, this office being so situated that he may readily see what is going on each side of him through the sash partitions separating him from the waiting rooms. These waiting rooms are well equipped with white marble seats which rest on bronze metal standards. The floors of the waiting rooms, as well as the superintendent's office, are of red Flemish tile with ornamental inserts set at random. The side walls are impervious yellow and buff brick, which meet the spring of the Guastavino tile ceiling arches 15 feet above the tile floors.

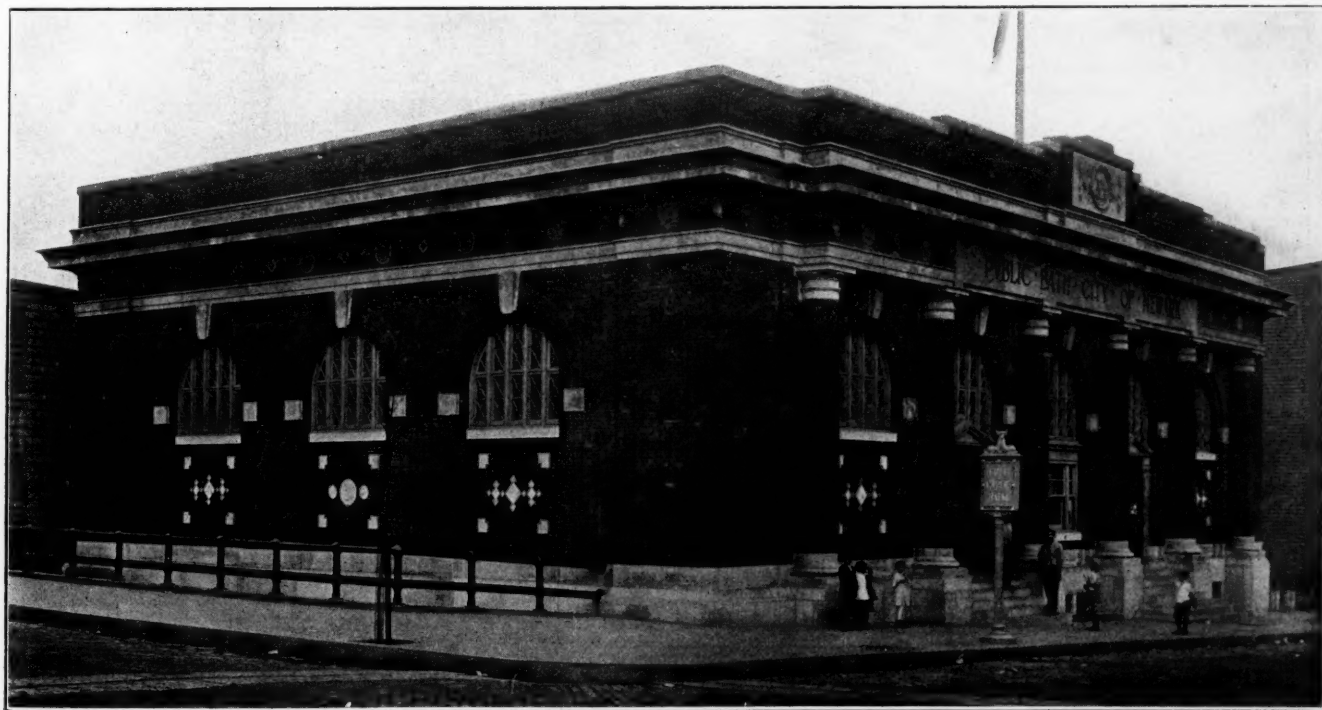


MEN'S BATHING HALL.

The penetrations in ceilings are filled in with tile lunettes picturing water-horses, dolphins, mermaids, etc., in bright and flashy colors. The lighting fixtures are in verde-antique.

The balance of the main floor is taken up with three bathing halls, two for men, and one for women. These halls are lined with the same quality of brick as the walls of the waiting rooms, have ceilings of Guastavino tile and floors of red tile, properly pitched and graded to carry water to outlets.

The main bathing hall for men contains thirty-seven bathing compartments or stalls with the proper dressing room in conjunction with each, the bathing compartment and dressing room each being about 3 ft. 6 ins. square and 7 ft. high. The partitions forming these stalls are made of Alberene stone, set on bronz metal standards.



GENERAL VIEW OF NEWARK'S NEW PUBLIC BATH.

and properly clamped together at intersections with bronze metal clamps. An interesting controversy took place between the various parties interested as to the relative merits of Alberene stone and green Vermont slate. Sufficient tests by the Engineering Department and separate ones by the architect proved that, for the purpose, the Alberene stone stood up better under the various tests, and, therefore, it was selected, saving the city of Newark \$300.

Each shower compartment is supplied with hot and cold water, through a "Geco" non-scalding mixing valve so operated that the smallest bather may easily operate same without danger.

The other men's bathing hall contains thirty-three showers, and is equipped the same as the larger hall. These halls also contain the necessary toilets, closets, lockers, etc., and each has two slop sinks.

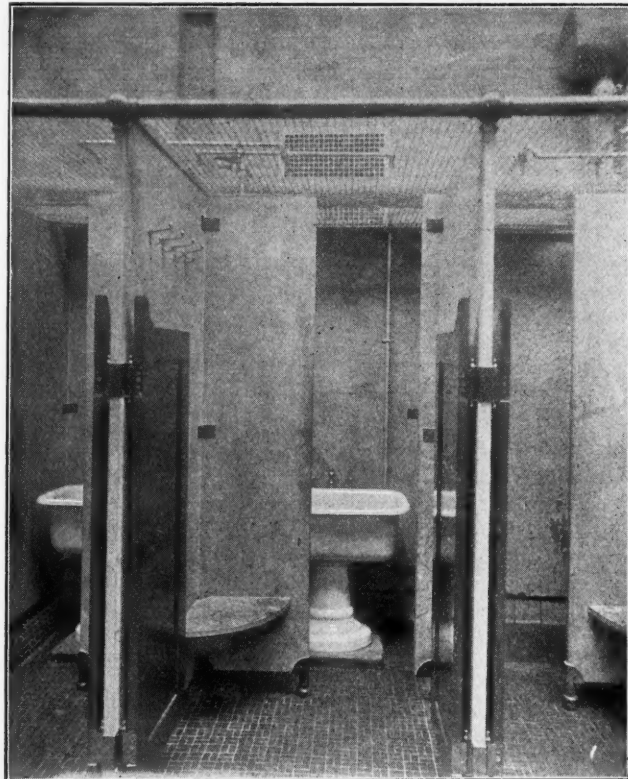
The women's bathing hall which, generally speaking, is fitted and furnished the same as the two men's, contains twenty-five showers, but in addition to the showers it has two bath rooms with enameled iron bath tubs, and two separate compartments containing small bath tubs on pedestals where the mother may wash her baby with plenty of warm water at her command.

All of the bathing halls are lighted from above by copper skylights, nearly equal in area to the halls themselves.

The Burchartz system was used in the floor and roof construction.

The heating system is a hot blast indirect, with direct auxiliary radiations and coils throughout, heated from exhaust steam from engine and pumps in boiler and engine rooms.

Two 100 h.p. boilers are installed in a boiler room located under the men's bathing hall on the east side. The engine room contains the necessary feed water heater, pumps, blow off tank, sump syphon, two hot water tanks,



BABIES' BATH TUBS IN WOMEN'S BATH HALL.

steam separator, gauge board and a complete electric lighting plant, including engines, dynamos, switchboard and meter board panels, etc.

The basement also contains exhaust and supply fans of Sturtevant patterns. The building is equipped with a Johnson Thermostatic temperature control.

#### CLEVELAND WATER WORKS NOTES.

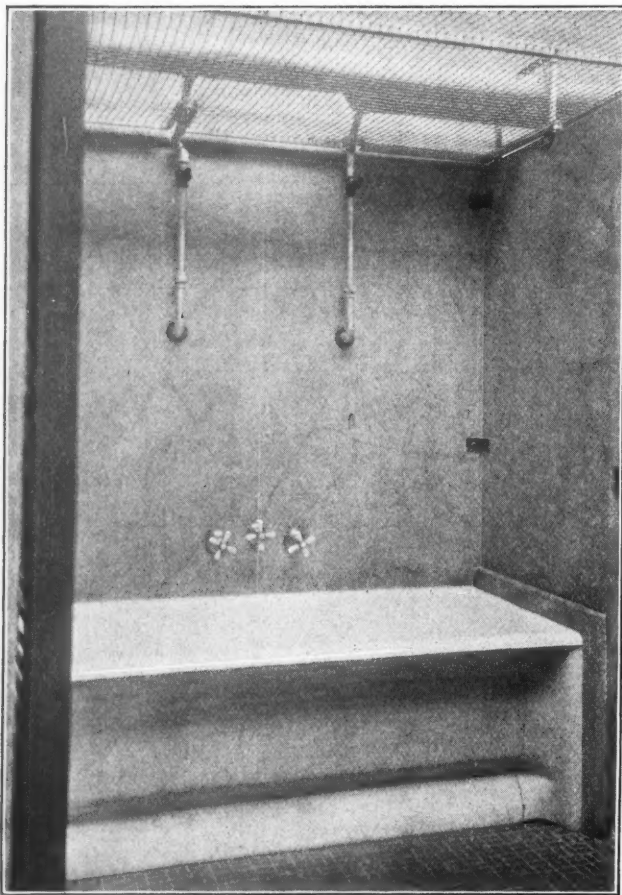
The construction of the Cleveland, Ohio, water works plant was started in 1854, and its operation began in 1856. The plant, including land, buildings and machinery, has now a net value of \$13,151,632.35. The total cost was \$16,688,624.92. There has been \$3,736,942.57 charged off for depreciation.

The plant serves all the people of Cleveland with water, as well as the villages surrounding it. The total population is 660,000—600,000 in Cleveland and 60,000 in the suburbs.

There are outstanding in bonds \$6,481,743.00 against the property. That is all the money that has ever been put into the plant outside of earnings, so that it has earned over and above its operating expense about \$10,000,000. The gross revenue for the year 1912 was \$1,321,120.20. The operation and maintenance cost for the year was \$426,394.97; that is equal to 32.2 per cent of the revenue.

The maintenance cost was above the average last year, due to the lowering and relaying of many of the large mains on streets where grade crossing work was in progress. The cost of lowering and relaying these mains was charged to repairs; in fact, the department does not charge the expense of this kind of work to new construction, although some of it might properly be so charged.

After deducting the operating and maintenance cost from the receipts, there was a balance of \$894,725.23, which might properly be termed a profit. From this sum \$261,888.42 was used for paying interest on bonds and \$96.66 for adjustment of accounts. This would make the fixed charges equal to 19.8 per cent of the revenue.



BATH TUB IN WOMEN'S BATHING HALL.



There was also charged off \$118,020.57 for depreciation, making 9 per cent of the revenue. This leaves, therefore, a net profit of \$514,719.58, or 39 per cent of the revenue. Since the only money in excess of earnings put into the property is represented by the outstanding bonds, and the interest on these having already been deducted before the profit was figured, as above shown, a dividend of 11.98 per cent could have been declared if the difference in value of the plant and the outstanding bonds were represented in stock.

In the year 1912 the department also set aside \$136,574.76 for sinking fund purposes with which to redeem bonds when they matured. The sinking fund at the beginning of this year had \$459,392.72 to its credit.

The department is very generous in the amount of free water furnished for public purposes—such as is furnished to the fire department, the public and parochial schools, hospitals, orphanages, infirmary, cemeteries, parks, playgrounds, the flushing of streets, as well as all water used for public improvements in the paving of streets, the building of sewers and similar work. If water thus furnished had been paid for at the regular rate the earnings would have been increased last year in the sum of \$114,000.

All meters are read at least four times per year, while many of the larger meters are read once a month, once a week or in some cases daily, depending upon their size and location. The water works department furnishes, sets and keeps in repair free of cost to the consumer, all meters, excepting those for factories. There are 27,000 consumers on whom the department loses money, this class including those where the minimum charge is but \$2.50 per year or \$1.25 per term. This sum does not cover the cost of reading the meters, making out the bills and collecting the same. The next class has a minimum of \$5.00 per year. In this class of consumers the department receives just about 40 cents per thousand cubic feet for all water consumed, due to the fact that nearly all of them use the full amount of water, while the other class uses somewhat less than the minimum, making the average rate about 50 cents per thousand cubic feet.

The larger consumers net the department a greater profit. The average rate for water used by the larger consumers (by which is meant factories and large buildings) is 42 cents per thousand cubic feet. In this class, however, is included the villages adjacent to Cleveland, which pay a higher rate, this varying from 60 cents to \$1.20 per thousand cubic feet. The income from the sale of water to villages last year amounted to \$98,000.

There is a total of 86,074 connections—84,052 of which are now metered, or 98.38 per cent. In 1901 only 6.42 per cent of the taps were metered. At that time the average consumption per inhabitant per day was 169 gallons, while in 1912 this consumption was only 110.7 gallons. In 1909, with 97.48 per cent of all taps metered, the consumption was only 93.64 gallons per inhabitant per day. This shows that the metering of taps has greatly reduced the waste of water.

If the taps had not all been metered, the city would have been obliged to put in many more large supply mains in order to furnish an adequate supply of water.

The department is operated on a strictly business basis, the merit system having been employed for a number of years, notwithstanding the fact that no civil service law governed the hiring of employees. Very few changes have been made in the operating department. Clerks and other employees holding unimportant positions have been changed with the change of administrations, but practically no changes have been made in

the engineering, constructing and operating departments. For instance, C. F. Schulz, who is now the superintendent and chief engineer, has been in the department for more than thirty years. Many of the foremen, turn-off men, etc., have worked in the department for upwards of thirty years. These men devote themselves to the work of the department without any thought of losing their positions.

#### SEWERAGE WORK IN 1914.

A correspondent informs us that he has, during the past two months, made a note of all work which has been announced as contemplated for 1914 along the lines of sewer construction, sewage disposal and sewage pumping in the states of New York, New Jersey and Connecticut, and up to January 20 had learned of work of this nature amounting to \$6,572,000 in New York, \$6,591,500 in New Jersey and \$1,512,000 in Connecticut. As he states, it is very probable that the next three or four months will see equally as large, if not larger, additional amounts of work decided upon for the year's construction.

#### STONE QUARRIES OF LYNN, MASS.

Gravel Pits and Stone Quarries, with Screens and Crushers, Furnish All Such Material Needed by Highway Department.

By HARRY T. RICH.\*

The city of Lynn, Massachusetts, is built upon a tract of land about 12 square miles in area, fronted by the harbor and ocean and backed by a series of wooded hills and ledges. The western boundary is defined by the Saugus river—a salt water tidal river—and a level expanse of marshland which in turn is backed by a continuation of the same hills. The city has set apart a portion of these hills as a public park, known as the Lynn Woods Reservation, which possesses great natural beauties.

From the standpoint of the street department the situation of the city is particularly fortunate, as all the gravel and stone needed for the work of the department is obtained from ledges in these hills. Crushers and pits are, when possible, so located as to give an average haul to all parts of the district in which they are located.

One gravel pit, the Aldsworth, so called from the former owner, is located in Lynnhurst close to the western boundary line of the city. There is a small amount of ledge here, but as yet no move has been made for a crusher. Breeds Pond pit, which for a great many years was the principal gravel pit of the department, is located on the shores of one of the city's water supply ponds and has now been abandoned, as the raising of the dam will shortly flood the workings. Severance pit, located in the northeastern section of the city, furnishes gravel

\*Chief Clerk to Commissioner of Streets and Highways.



COLEMAN QUARRY AND CRUSHER.

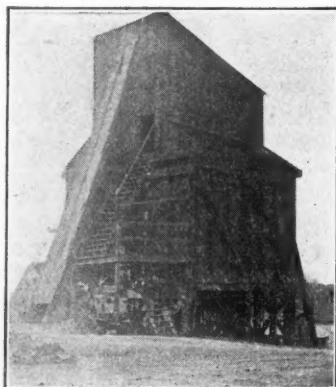
only. In all these pits the gravel is removed, raked and screened by hand.

At the Coleman or Pine Hill pit, located somewhat north and west of the geographical centre, is a quantity of very hard ledge, covered by a large quantity of the finest blue gravel. In the spring of 1913 there was installed in this pit a Reliance jaw crusher, having an opening of 12 by 24 inches, and with a capacity of 18 to 24 tons per hour on stone 2½ inches or smaller. This is driven by a 35-h.p. electric motor. As it has been necessary to clear the pit before beginning on the ledge, not enough has been accomplished in the production of stone to make a showing.

In conjunction with the crusher there has also been installed a large derrick provided with a loading tray which will be used to convey the material from the ledge to the crusher. It is probable that an auxiliary screen will also be placed here and all material loaded into the tray, leaving the work of separating the gravel and stone to the two screens.

Being somewhat inaccessible at the time the ledge was purchased, the derrick, clearing of the ledge, building base, installing and testing of the crusher, cost \$3,193.24, which includes cost of the crusher.

The Henry avenue crusher has been the principal source of stone used by the department for the past three years and is located in the Highland district, about half a mile north of the business centre. The ledge here is now nearly exhausted, and the working will soon be at an end. The crusher is a Gates gyratory, driven by a 50-h.p. electric motor. The installation is of the accepted type: crusher in conjunction with buckets and bins. Hauling from the ledge to the jaws is done by teams.



HENRY AVENUE CRUSHER.

This plant was installed in 1893 at a cost of approximately \$8,000, including boiler and engine. From 1905 to 1910 it remained idle, it being claimed that the material could be purchased cheaper than it could be crushed. In 1911, with the advent of commission government, the crusher was rehabilitated and work of crushing began in earnest. This year approximately 20,000 tons were crushed at a cost of 79 cents per ton.

In 1912 the long period that the crusher had lain idle exposed to the weather, coupled with the strain of the previous year's crushing, began to tell upon the equipment, and frequent breakdowns were in order. About the middle of the season the main ledge—as far as the limits of city ownership were concerned—gave out, and recourse was had to a detached portion of the ledge situated some distance down the hill from the crusher. Both of these facts operated to increase the cost of the stone to 98 cents per ton.

In 1913 the breakdowns have been very frequent and of a more serious nature, and it has taxed the ingenuity of Commissioner George H. McPhetres to keep the equipment together long enough to clean up the ledge. To October 1, 11,190 tons have been crushed at a cost of \$1.18 per ton. From the point of view of this department alone this price would be prohibitive, but the other side of the story is that the lots being cleared are so located that they will bring good returns as building

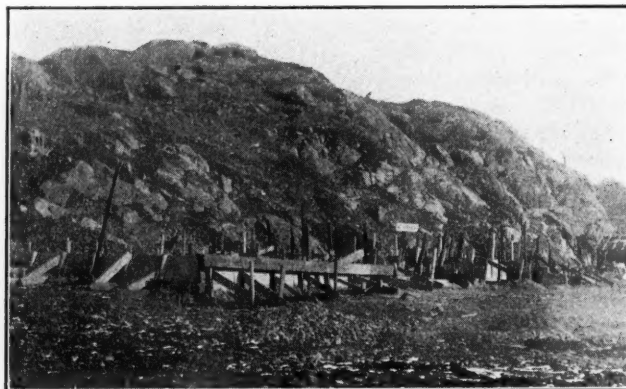
lots, so that in the long run the city as a whole will be the gainer.

The quarrying equipment consists of Wood drills operated by steam from a traction engine which was purchased by a former government and found to be too unwieldy for the purpose for which it was intended. A Westinghouse air compressor also furnishes power to operate a Sullivan air drill.

When the ledge is cleaned up, the crusher will be scrapped, and such equipment as can be used will be moved to the Clark street quarry.

This ledge is situated at the extreme eastern boundary of the city and when cleared will present a 75-foot working face. The stone in this ledge is of the best in this section for road work. A jaw crusher of the same make and capacity as that installed at the Coleman pit has been ordered. The crusher has not yet arrived, but the clearing of the ledge and preparation of the base is under way.

In tandem with this crusher will be mounted a small Climax jaw crusher which did duty at a ledge that formerly existed in the yard of the city stables. This crusher has been overhauled by the repair department and is now practically as good as new. It will be placed so as to receive the tailings from the Reliance and will make pea stone and dust, of which a great deal



CLARK STREET LEDGE. CRUSHER BASE UNDER CONSTRUCTION.

is used in granolithic sidewalk work and as a finishing coat for cinder walks.

Both crushers will be driven by the same motor, a 75-h.p. electric. There will also be a small electric winch, which, in conjunction with a portable track and an automatic dumping car, will haul the material from the ledge to the crusher, returning to the ledge by gravity.

On North Bend street, a half mile north of the Henry avenue plant, is a ledge that will probably be opened up within a year or two and is estimated to contain stone enough to last the department for fifty years. At the foot of the ledge will be built an auxiliary stable for the use of the street department exclusively, and as soon as this is completed steps will undoubtedly be taken to secure a crushing plant.

The ledge will work into a 40-foot face and will be a convenient place for working the men when street work is impracticable. It will result in a saving to the city and the men, as in unfavorable weather they can get their day in on the ledge; and in hitching out in the morning the teams can take a load from this plant and after discharging begin hauling from the nearest available crusher.

With this ledge open the city will be well covered, as Colemans will be used for the western section, Clark street for the eastern, and North Bend for the centre.



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## CHANGE OF ADDRESS

Subscribers are requested to notify us of changes of address, giving both old and new addresses.

Contributions suitable for this paper either in the form of special articles or of letters discussing municipal matters, are invited and paid for.

Subscribers desiring information concerning municipal matters are requested to call upon MUNICIPAL JOURNAL, which has unusual facilities for furnishing the same, and will do so gladly and without cost.

JANUARY 29, 1914.

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## Public and Private Business Morality.

Municipal Journal has always maintained, even at the height of the magazine "muck-raking" campaign, that the majority of city officials and employees are honest and faithful; that if no better than those holding corresponding positions in private business they were at least no worse. It is therefore with considerable satisfaction that we see the best writers and thinkers recently expressing the same belief. The Saturday Evening Post in a recent editorial said: "So far as downright thieving goes, there is probably much more of it in business than there is in politics—though business can absorb a great deal of downright thieving and still beat politics on the net result, because on the whole it is vastly more efficient." And it refers to the recent appointment by the American Association of Woollen & Worsted Manufacturers of a committee "for the purpose of suppressing and prosecuting bribery and improper trade practices in the sale of mill supplies"—practices which are so extensive as to create a trade scandal.

After all, holders of municipal offices are ordinary human beings working for a living and having the same virtues and frailties as those who have private corporations for employers. If there is more graft in public than in private business, it is because the temptations

or opportunities are greater—and this is the fault of their employers, the voters. But we do not believe there is more. Every least digression of a public official is made public—the reporters of the opposition papers see to that; but how many managers of private business have not at some time concealed thefts or wrongdoing of employees for one reason or another? And how many days pass that someone in private business is not convicted of illegal practices, to say nothing of dishonesty within the law? Moreover, the people set a higher standard of honor and honesty in public positions than in private. Giving a poor relative a position under you in a private business is commendable but is nepotism if the position is a public one, no matter how well he can fill it. Getting a trade discount through the house one works for on goods for one's own use is common practice; but obtaining any personal advantage from a public position is graft.

Business men set bad examples and their own obliquity makes them suspicious; otherwise they would realize that public employees are their equals or betters in public morality.

As for efficiency, what would be expected of a large force, say of railroad employees, who knew that their general manager would be changed every year or two, that he was unfamiliar with the business, and that he was being continually criticised by the directors no matter how well he did? And what sort of discipline could such a manager obtain? And how much heart would he put in his work?

Public business cannot be efficiently managed until the highest, as well as the lowest, positions are permanent during satisfactory service—then ambition and pride in results as well as an intimate knowledge of the work may be possible; until positions are absolutely non-political, then half the community will not find fault regardless of reason and only because they are the "outs"; until public office is recognized by the people generally as being equal in honor to private positions where equal ability is required, then capable men can be obtained to fill them, and until there be some standard of efficiency for comparison to take the place of competition in business and afford a basis for justifiable praise or criticism.

## Municipal Quarries.

Plants operated by two cities, one on the Atlantic and the other on the Pacific coast, for supplying gravel and broken stone, are described in this issue; and we have previously described other municipal enterprises of this nature. These may both prove successful from a financial point of view, but we would suggest to cities generally that they go cautiously in following their examples. Where there is a steady demand by city departments for sufficient of the product to keep busy a plant of economical size, and a convenient quarry or gravel bank is available, there is a possibility of success; but where the plant can be operated only intermittently or else part of the product must be sold, the management is greatly handicapped.

## State Ownership of Water Supplies.

The state ownership of the general water supply of New Jersey is now in prospect and obstacles in the path of consummating that object are gradually being eliminated, according to the report recently submitted by the State Water Supply Commission to Acting Governor Taylor. It has been necessary in many instances to combat the corporate interests by resorting to litigation proceedings in the courts. However, it is expected that

those proceedings will be brought to a speedy close, and that further delay in putting into operation the plans for a general state water supply will be entirely removed.

In the case of the East Jersey Water Company and its allied corporations, a conference will be called at Paterson on February 20 between the Governor, the commissioners and the representatives of municipalities interested, to consider the advisability of acquiring these properties by the state.

The reports states that should the physical properties of the East Jersey Water Company at Little Falls be purchased, the commission would start to operate at once in supplying interested municipalities with water in large quantities and upon a basis which will apply profits to retiring bonds to the ultimate benefit of all concerned. The commissioners assert that they are well aware of the advantage to be obtained in securing a well-equipped pumping station and a modern filtration system, as compared with the proposition of building a reservoir on Wanaque watershed.

If the East Jersey property be purchased, it is intended to construct storage reservoirs farther up the Passaic valley, and in other ways to increase the capacity of the present source of supply.

Besides announcing these plans, the commission calls particular attention to the important questions involved in several litigations now pending before the court. One of these is the validity of the proposed purchase of the Wharton tract as a source of supply for communities in the southern section of the state. In a suit brought by the borough of Collingswood, the general jurisdiction of the commission is questioned in disapproving plans for a municipal water supply. Against the Elizabethtown Water Company a suit has been brought involving the constitutionality of the act of 1913 authorizing the commission to compel a physical appraisal of the property of that company.

Though conditions were adverse, the commission has made substantial progress, and expects to proceed in its work of solving a problem which it believes affects very intimately the welfare of the people of New Jersey.

#### MASSACHUSETTS MUNICIPAL FINANCES.

With the beginning of this year there went into effect in Massachusetts a new order in municipal finance, one of the most interesting items of which was a prohibition against the use of sinking funds. Hereafter all loans issued must be payable by the serial method instead of all at one fixed date. As a matter of fact, most of the bonds sold by Massachusetts cities and towns for some time back have been issued on this plan. Another provision is that the financial year of all towns must close in 1914 on December 31 and thereafter on that date each year.

Other provisions of the new legislation which has just become effective are as follows:

Loans hitherto described as being in anticipation of "taxes" should be described as being in anticipation of "revenue." But notes in anticipation of revenue cannot be used to an amount in excess of the total tax levy, together with the bank, corporation and street railway tax of the preceding financial year.

Town accountants or treasurers must notify the assessors of all debts falling due during the year and sinking fund requirements, and assessors must make any necessary provision for meeting the same in the levy.

Liabilities are not to be incurred in excess of appropriations.

Trust funds and perpetual care funds must be invested.

Trust funds which have been used or borrowed must

be restored and all outstanding demand notes taken up and paid either from the tax levy of 1914 or by refunding.

All notes of fire, water, watch, light and improvement districts are to be subject to certification by the director of the bureau of statistics.

#### CONSTRUCTION WORK BY YOUNGSTOWN WATER DEPARTMENT.

By WILLIAM A. MASON.

To meet the demands of the rapid growth of Youngstown, Ohio, the city is building a reservoir of 10,000 million gallons, additions to the filter plant, and a stand-pipe. The supply to the city is at present taken from the Mahoning river, but in dry seasons there have been certain hours of the day when the consumption is greater than the flow of the stream, and the purpose is to dam the river to increase the flow at such times. The filter plant has been overtaxed, with the result that the water could not be sufficiently purified. In addition, the pumping plant has been working up to capacity, and should a fire occur while one of the pumps is out of commission it would be impossible to furnish sufficient water for fighting the fire. This last condition has been met, however, by an additional pump which has already been installed and another which has been ordered.

The question of a better water supply for the city has been agitated for years, and many wished to secure a domestic supply other than the river; but about three years ago what is known as the Milton reservoir site was selected, which offered the largest possible supply of water that could be secured in the vicinity of Youngstown by the construction of a single dam. It is located 16 miles due west of the city, but 35 miles measured along the river, which takes a wide sweep to the northward. Between Youngstown and the reservoir are the towns of Warren, Niles and Girard, which also will profit by this water supply. All the land required for the reservoir has been acquired, except one small parcel, and preliminary work has been started on the dam by Louis Adavasio, of Youngstown, to whom the contract for the dam has been awarded. Actual construction work will begin as soon as weather permits.

This reservoir will receive the drainage from an area of about 300 square miles, and when filled to the level of the spillway the water will cover 1,700 acres of land, with a maximum depth just above the dam in the river channel of 46 feet. This will be the largest body of water in Ohio, except the Grand reservoir in the western part of the state. The dam will consist of an earthen embankment with a core wall 2,180 feet long and a concrete spillway 660 feet long. This has been designed by City Engineer F. M. Lillie, with the assistance of J. W. Ledoux, consulting engineer of Philadelphia. The present channel of the river is at approximately the middle of the concrete spillway. Bed rock is exposed in the centre of the channel.

A trench will be constructed the entire length and width of the spillway to a depth of 6 to 8 feet below the surface of the rock, and at the upstream side the trench will be carried 5 feet deeper for a width of 5 feet and 2 feet deeper for an additional width of 3 feet. The back of the spillway will have a batter of 1 in 10 and the downstream side a batter of  $6\frac{1}{2}$  inches per foot with a curve at the top having an 8-foot radius and one at the bottom having an 18-foot radius. The width of the top of the spillway, between batter lines produced, will be 10 feet. It will rise about 47 feet above the surface of bed rock, and have a maximum width of about 53 feet. It will be constructed of concrete mixed 1 of cement, 2 of sand, 4 of gravel or crushed stone, with large blocks of sandstone (of which there is much lying



around the site of the dam) interspersed, giving a cyclopean construction.

The embankment is 20 feet wide on top with a slope of 2 to 1 on both upper and lower face. At the upstream toe a 6-foot trench is to be dug to rock and filled with a concrete wall 2 feet thick on the upstream side and the remaining 4 feet with clay puddle, sheet piling being driven down to rock between the two. The concrete is carried up the slope of the embankment as a lining, with a thickness of 9 inches and reinforced with expanded metal. This concrete lining terminates 5 feet below the level of the spillway, and from there to the top the embankment is lined with 18 inches of rubble masonry in cement mortar. The downstream face of the embankment is to be riprapped throughout. The top of the embankment is to be finished with a 4-inch concrete walk and a 3-foot concrete parapet to prevent waves going over the top and for the protection of those walking there. The embankment extends  $9\frac{1}{2}$  feet higher than the level of the spillway. The maximum height of the embankment, for about 1,000 feet of its length, is 38 feet. The natural surface of the land under the upper half of the embankment is to be stripped of all top soil to a depth of 12 inches or greater, as may be ordered, and the embankment formed of selected material rolled in layers. The present soil under the location of the embankment at the bottom of the valley is 26 feet deep to the surface of the rock, 12 of which is river gravel. It is in order to prevent the water passing under the embankment through this gravel that the cut-off trench mentioned above is provided. Drill holes will be made in the rock at the bottom of this cut-off trench, and, if it is found to be seamy at any point, cement grout will be forced into the holes under pressure.

Four 60-inch outlet pipes supplied with gates will pass through the spillway just to one side of the present river channel, two of which will be set high enough to be used for operating an electric power plant, if it should ever be desired to install one in the future.

It is calculated that the discharge of the spillway with 9 feet of water flowing over it will be 195 cubic feet per second per square mile of drainage area. The Columbus, Ohio, dam in the flood of last spring is calculated to have had a maximum discharge of 88 cubic feet per second per square mile of area, giving this proposed Milton dam a discharge per square mile twice as great as the Columbus dam had in the flood of last spring.

The plan is to have the reservoir discharge into the channel below the dam at the rates needed to supply the industries and the city intake, which latter is several miles further down the stream. A line has been surveyed for a conduit from the pumping station to the dam, which would be 22 miles long.

One of the most important features of the improvements under way is the addition to the filter plant of two reinforced concrete settling basins, one of which has already been completed. Each of these basins is 150 x 200 feet and 18 feet deep, with a capacity of 8,100,000 gallons daily. They will take the place of the present basins, which will be converted into 16 new filter beds, each having a capacity of 850,000 gallons per day. With these new filters added to the present filtration plant, the capacity for filtration will be increased from 10,000,000 to 26,000,000 gallons per day. The present average daily consumption for the year is over 10,000,000 gallons, but it is believed that the enlarged plant will be sufficient for years to come.

The city is also building a steel standpipe which is 100 feet in diameter and 50 feet high, with a capacity of nearly 3,000,000 gallons, and which is believed to be the largest in the country, if not in the world. It is being

built by the Chicago Bridge & Iron Works. The foundation is of concrete. The sides of the tank are of open hearth steel plates varying in thickness from  $1\frac{3}{8}$  inches at the bottom to  $\frac{3}{8}$  inch at the top. The plates in the bottom are  $\frac{1}{2}$  inch thick. To stiffen the top against wind pressure the top of the standpipe will be reinforced with a horizontal circular girder 3 feet 6 inches wide, which will be supported by brackets and provided at the outside with a latticed railing 2 feet 6 inches high. It is provided that the section modulus of the girder shall be not less than the square of the diameter in feet divided by 250, and that the brackets and girder shall be sufficiently strong to support a uniformly distributed load of 50 pounds per square foot, or a concentrated live load of 500 pounds at any point, whichever loading develops the greater stress.

#### WATER WORKS TRUCKS IN BROOKLYN.

The Department of Water Supply, Gas and Electricity (which has charge of the underground pipes and conduits) of the city of New York, has in its service in the distribution division in Brooklyn a motor truck used and specially equipped to serve as an emergency wagon. This truck has now been in service about eight months, and is held always ready to answer emergency calls, such as large breaks in water mains where the mains must be shut off at the earliest possible moment, and for answering every second alarm of fire to see that the fire hydrants are all operating properly, and in general to be on hand in case of any difficulty with the water supply or water mains and appurtenances. In answering such calls the truck carries a sufficient number of men to perform any of the emergency duties which may be demanded, and usually maintains a speed of thirty to thirty-five miles an hour. This truck answers emergency calls for the entire borough of Brooklyn, taking the place in this respect of three horse-drawn emergency wagons and repair companies. It is kept at the western district repair yard, to which all alarms are sent.

About six months ago another motor truck was assigned to the Coney Island repair squad of the same borough, which is used as a general repair wagon, taking the place of two or three horse-drawn vehicles. It is used to transport men and material between the repair yard and the various jobs, and in performing this work covers an average of about sixty miles a day. Each of these trucks is on service for the entire twenty-four hours and has three shifts of automobile enginemen. Both trucks were obtained from the Auto Car Company.

There is an engineer in charge of the distribution division of the borough, and the repair yards, of which there are five, with several gangs in each, are in charge of a foreman.



EMERGENCY TRUCK, BROOKLYN WATER DEPT.

### NORWALK MUNICIPAL LIGHTING PLANT.

The municipal lighting plant at South Norwalk, Conn., which has been described and several times referred to by Municipal Journal, can no longer be referred to by this title, as on October 8, 1913, the city of South Norwalk became the "second taxing district" of the new city of Norwalk. The most interesting feature of the year 1913, however, was the fact that by the end of that year the entire bonded indebtedness of the plant had been provided for by a final payment into the sinking fund. There are outstanding at this time \$42,500 of lighting bonds at 4 per cent interest, and the lighting commissioners have \$17,500 cash in the local banks drawing 4 per cent interest, and hold \$25,000 4 per cent bonds of the city of South Norwalk. Thus the interest from the sinking fund meets the interest on the bonds and the sinking fund itself is sufficient to meet the bonds when they become due. The sum invested in the plant exceeds the amount of outstanding bonds by about \$161,000, all of which was derived from the profits of the municipal plant without any demand on the city treasury at any time. At the same time the rates have been, it is claimed, as low as or lower than those of any other community in the state. It is proposed to place \$10,000 a year from the profits of the plant in the public treasury, permitting the general taxation to be reduced by this amount; the balance of the profit to be used for betterments, extensions and renewals, and for the establishment of a fund for the replacement of the plant.

During the past year the street lighting system has been materially changed. In the fall of 1912 the regular street lighting service consisted of 118 arc and 48 tungsten lamps. This service had been built up from time to time by the addition of lamps as the streets were extended, until the capacity of the plant had been nearly reached, although localities had been developed which were not adequately lighted. Moreover, it was found difficult to properly light certain sections where there were short non-intersecting streets and numerous bends, and where the dense shade trees interfered with the distribution of light from arc lamps. The use of medium tungsten lamps at shorter intervals and less elevation above the street had already been tried with favorable results, and during the year a complete rearrangement of the street lighting service was made whereby the number of arc lamps was reduced from 118 to 40 and the tungsten lamps increased from 48 to 355. Thus nearly three times as many lights were provided, but there was an annual saving of \$896 to the taxpayers, and there was also left an ample reserve capacity for such additional street lamps as may be needed for a considerable time to come.

### WATER RATES.

In its 1912 convention the American Water Works Association appointed a committee on tabulation of water rates, which was instructed to obtain and tabulate the water rates and other information of this general character pertaining to as many cities of the country as possible. This committee has obtained figures from something over 400 cities and from such answers as have been received and tabulated finds that the average rate for a filtered water for a house service, bath, water closet and sprinkling connection for a 40-foot lot is about \$18, and that the average meter rates are about 23 cents per thousand gallons maximum and 9 cents minimum rate. The chairman, F. C. Jordan, believes the most logical rates to be those in force at New Orleans, the scheme of which has been described at length in The Municipal Journal.

Special attention was called to the question of rates for municipal fire service, and especially to the principle adopted by one city—that of basing the payment on the size and length of the water mains as well as on the number of fire hydrants. In the city in question 3 cents a foot is paid as rental for each 6-inch pipe, 4 cents for each 8-inch, 5 cents for each foot of 10-inch, etc.; and in addition to this there is an annual payment of \$7.50 for each hydrant, which is calculated to cover the interest, depreciation and maintenance of the hydrant. Under such a system the company receives payment in proportion to the service rendered, such service consisting not only in furnishing hydrants, but also in furnishing pipe of sufficient size to supply the water for the hydrant. It also makes it possible for the city to greatly increase the number of hydrants in the business district of a city without large additional expense. In reference to this John W. Alvord said that practically this plan had been suggested by him in one case and adopted, and he hoped to see it come into more general use.

Concerning a comparison of rates, Mr. Jordan said that conditions were found in a number of cases which showed that it is unfair to compare rates unless consideration is had of all the conditions affecting the rates. In about 15 of the larger cities where the rates were apparently very low it was found that either a part or the entire cost of the laying of water mains is assessed against the property owner, and the interest charge on these costs should be added to the rate in making comparison with cities where the owner is not assessed for mains.

### WATER WORKS OF TRENTON, MO.

The city of Trenton, Mo., until 1906 obtained its public water supply from a private corporation owned by eastern capitalists. In July of that year the taxpayers, considering that the service rendered was not satisfactory, in that the plant was in a very much run-down condition and furnished only muddy water a large part of the time, voted \$65,000 with which to either build a new plant or purchase the old one. The latter was finally done, \$39,000 being paid, which left \$26,000 plus \$1,275 premium on the bonds to be used in improvements and extensions. During the remainder of that year only \$1,900 was spent, but in 1907 \$12,862 was spent in improving the plant, in the next five years \$31,540, and last year \$10,510 was added to the improvements. This gives a total of \$29,540 spent in improvements which was taken from the receipts of the plant, and on January 1 of this year there was still in the treasury \$4,314. In the meantime, \$79,240 had been spent in operating expenses and maintenance charges. The receipts have steadily increased from \$3,674 during the last six months of 1906 to \$17,600 in 1913.

The old company had made several unsuccessful attempts to filter the water. The city adopted the plan of a settling basin, building one with a capacity of about 65 million gallons—about a 90 days' supply—from which the water is pumped to the standpipe. Water is pumped into the basin when the river is clear, a 50-horsepower gas engine and centrifugal pump being used for this purpose. Whenever the water in the river is muddy the supply is drawn from the reservoir reserve. Among the other improvements the city has installed two steam pumps and boilers, added an extension to the pumping station, replaced with 12-inch pipe the 8-inch main from the pumping station to the standpipe, laid six miles of new main and added 25 fire hydrants. The new steam pumps lift the water from the settling basin to the standpipe, replacing wornout electric and steam pumps.



# The WEEK'S NEWS

Concrete Bridge at Great Bend, Kans.—Chicago Solves Garbage Disposal Problem—Rochester's Disposal Plant Nearly Completed—Jersey City May Face Water Shortage—Demonstrate Automatic Fire Alarm—Hartford Investigates Commission Government—Recreation Parks Planned—Municipal Stores.

## ROADS AND PAVEMENTS

### Progress in the Lincoln Highway.

San Francisco, Cal.—The interest centred in the Lincoln highway has not abated, but is just as active as ever. Construction will continue all over the country this spring and by 1915 it will be sufficiently near completion to permit of comfortable travelling for those who desire an overland trip to the Panama-Pacific Exposition. From the national headquarters of the highway association in Detroit comes the report that subscriptions for road building are still being received quite freely and that the outlook is promising.

### Paving to Save \$5,000 Yearly.

Atlantic City, N. J.—That the paving of the Meadow Boulevard would probably save the county several thousand dollars a year which is now being expended for repair on the gravel road was the statement that G. B. Jeffers, chairman of the Road Committee of the Board of Freeholders made at the regular meeting of that body. The maintenance of the present road costs the county nearly fourteen thousand dollars each year. The report of the county road supervisor shows that for the past year it cost \$13,319.19. Mr. Jeffers stated that if a bond issue of \$175,000 was floated by the county and the Boulevard paved, anywhere from four to five thousands could be saved. The sinking fund commission on these bonds would be about \$8,500 a year, while there would be practically nothing spent for the upkeep of a paved road.

### Investigate Durability of Wood Blocks.

Rochester, N. Y.—Information as to the durability of creosote wood blocks for paving purposes has been asked by the Forest Service of the United States Department of Agriculture, in a communication received by City Clerk Dransfield. In the letter copies of which are being sent to various cities throughout the country, the Forest Service has announced that it is about to begin experiments to test the worth of creosote wood blocks as paving material and requests that the various municipalities furnish information which will be of assistance to the government department in making such tests. Creosote wood blocks have been used in the pavements on Central Avenue and Platt Street bridges on Portsmouth Terrace, and in a portion of Oxford street, and this material is now being used in paving Genesee street.

### Complete Concrete Bridge.

Great Bend, Kan.—The Great Bend Bridge, which is shown below, has just been completed and opened to traffic. It is 480 feet long and has 10 spans of 48 feet each. It

is 26 feet in width, 24 feet wide in the clear. Each end of the spans rest on cast plates on piers, and each span weighs 150 tons. The bridge is 8 feet above low water mark, and each pier is set 7½ feet beneath the low water mark, resting on 19 thirty foot piles driven into the river bed. There are 11 tons of steel reinforcing to each span, and half inch expansion joints between each.

### Highway Association Plans Extension System.

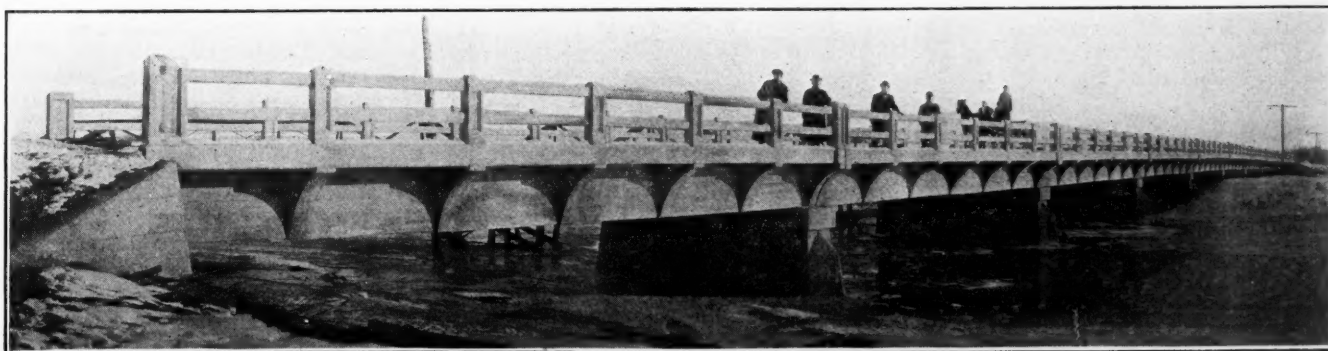
Longview, Tex.—At an enthusiastic roads meeting here, there was effected a permanent organization of the Texas, Louisiana and Arkansas Highway Association. Officers of the association are: Judge J. H. McHaney, County Judge of Gregg County, president; Judge R. A. Loomis, Jefferson, Tex., first vice-president; C. S. Rhodes, Wills Point, second vice-president; O. L. Williams, Bowie, secretary; T. C. Morgan, Longview, treasurer. It is the purpose of the Texas, Louisiana and Arkansas Highway Association to build, maintain, sign-post and advertise a through trunk line highway from points in Arkansas and Louisiana to Dallas, Tex. The line of the road in each county will be built to comply with a code of specifications which will be adopted at the first meeting of the board of directors. It is intended that this highway shall form a link and be an official division of the transcontinental highway through Eastern Texas. Numerous splits and divisions are at present proposed in the line, although the main trend of this highway will be through the counties of Bowie, Cass, Marion, Harrison, Gregg, Smith, Upshur, Wood, Van Zandt, Kaufman and Dallas.

### Abutting Property Owners to Pay for Oiling.

Newburgh, N. Y.—Mayor Corwin in his message to the City Council declared that only those who receive the benefits of street oiling should pay for it. Instead of making a general tax for oiling, the assessment would be levied on the abutting property owners. The Street Committee of the Council endorsed the mayor's plan. Corwin gave as his reason for instituting the change the many complaints received from residents whose streets were not oiled but who were nevertheless taxed for that purpose.

### \$7,267,000 in Highway Bonds.

Fort Worth, Tex.—There were 86 road and bridge bond elections held in Texas during 1913, and 51 of them carried by large majorities, resulting in the appropriation of \$7,267,000 for highway improvement. This is more than double the amount of bonds issued in this state in 1912. The aggregate amount of bonds voted on in 1913 was \$11,661,000, but 35 of the issues, involving a total of \$4,394,000, were defeated. The law governing the issuance of bonds for highway improvement permits a county, precinct



Courtesy The Hutchinson News.

GREAT BEND CONCRETE BRIDGE.

or road district to bond its property for amounts not exceeding one-fourth of the assessed valuation. This statute went into effect in 1909, and since that time nearly \$25,000,000 has been appropriated in this manner for road building and maintenance. The largest amount was voted in 1911, when \$8,915,000 in bonds were issued. The record, by years, since the passage of this law, follows:

Year.	Amount of Bonds.
1909 .....	\$781,000
1910 .....	4,015,000
1911 .....	8,915,500
1912 .....	3,496,200
1913 .....	7,267,700

#### Nebraska Has Highway Commission.

Omaha, Neb.—To look after the work of improvement of the roads through Nebraska, and particularly that stretch across the state designated as the Lincoln Highway, the governor has appointed an advisory highway commission. It consists of H. E. Fredrickson, of Omaha, state consul. It consists of H. E. Fredrickson, of Omaha, state counsel of the Lincoln Highway Association; J. G. Beeler, of North Platte, and C. H. Gustafson, of Mead. The commission will work without salary and will advise county boards of the proper methods of construction and encourage the building of permanent roads and bridges.

#### Plan New Road.

Lubbock, Tex.—At a meeting of the Commissioners' Court, it was voted to open up a road from the city straight through to the southwestern corner of the county. This road when completed will open up a large territory and will not only bring an increased business to the city, but will be of great convenience to farmers both in this and Terry County. The Commissioners have bought a quantity of road machinery and will put all roads in the county in good shape as soon as possible.

#### Enter Good Roads' Movement.

Holland, Miss.—The farmers of Olive township have joined the movement for building their own good roads. For several days from 50 to 70 teams were at work on the Zeeland road assisting in grading the road and hauling gravel. Near Rush nearly 20 teams were used for 2 weeks gratuitously. The road construction on the Noordeloos highway is largely completed, for farmers have given services equivalent to 55 days' work.

## SEWERAGE AND SANITATION

#### Sewage Disposal System Nearing Completion.

Rochester, N. Y.—The new sewage disposal system is rapidly nearing completion, final steps in its construction having been planned for next spring. Consulting Engineer E. A. Fisher has gone to Albany to present for approval, final plans for the disposal plant to Health Commissioner E. H. Porter. The plans are said to include all the most modern ideas on purification work. After Commissioner Porter's approval, bids will be advertised.

#### Sewer Collapses.

Baltimore, Md.—A sewer, known as the Hartford river sewer, caved in and caused considerable damage to pavements and cellars. About 900 sq. feet of asphalt pavement dropped 15 feet into the earth. Water mains broke and flooded the stock stored in cellars by merchants. The sewer was tunneled instead of dug when it was constructed twenty years ago, according to Chief Engineer Hendrick of the Sewage Commission. Breaks have frequently occurred and it is believed that the recent break was caused by a weakening of the mains from rains.

#### Pink Slips for Spitters.

Buffalo, N. Y.—Anyone found spitting in the street cars of this city, will hereafter be handed a pink slip by the conductor on which is printed: "Warning: To spit upon the sidewalk or other prohibited place will subject you to a fine or imprisonment, or both. Dr. Francis E. Fronczak, health commissioner." The other side of the slip contains the city ordinance on spitting in public places.

#### Cities Observe "Health Day."

Concord, N. H.—Meetings to consider public health problems have been held in various parts of the state,

in accordance with a recent proclamation of Governor Felker providing for "health day." The governor expressed the belief that the setting aside of a day for this purpose would serve "to focus thought and stimulate activity along the lines of the prevention and restriction of disease, and to concentrate action that will result in greater efficiency of purpose."

## WATER SUPPLY

#### Municipal Waterworks Efficient.

Topeka, Kans.—The efficiency of the local municipal waterworks system has been shown in the annual report of Frank S. Stevens, assistant superintendent of the Topeka water supply organization. Assistant Superintendent Stevens shows that in the last year nearly 400 meters have been added to the Topeka system and that Topeka has sold \$110,405 worth of water in twelve months. In 1913 the office receipts were \$121,578. Disbursements amounted to the same figure. Including hydrant rental from the city and other detailed receipts and the expenses of the department with the operative and constructive figures, the city shows a clean balance sheet for the twelve months of last year. Furthermore, in the year of 1913, Topeka spent \$30,000 for a new pump and \$26,690 for other betterments and extensions bringing the total improvement amount to \$56,690. Other expenses included \$5,906 for salaries, \$12,058 for wages, \$7,694 for fuel, \$1,763 for supplies, \$4,029 for repairs, \$3,175 for deposits returned and \$4,868 for merchandise. In the last twelve months the waterworks department has set 398 meters and issued 368 meter permits. The year's additions brings the total city meter services to 7,250.

#### May Face Water Shortage.

Jersey City, N. J.—At a meeting of the Board of Commissioners, Director of Streets and Public Improvements J. J. Ferris urged that a second pipe line be laid under the Hackensack river to amply supply the water need of Jersey City. Using as an example the consumption of a certain day, it was shown that 6,000,000 gallons were used in excess of the supply of the present pipe line. That pipe line can supply 49,600,000 gallons a day, whereas 55,600,000 were consumed. Taking into consideration the storage capacity of the two reservoirs, which is 120,000,000 gallons, and the excess consumption on two days, ranging between nine and ten million gallons, should this condition continue Mr. Ferris pointed out that the city would lose its storage and be dependent upon an inadequate supply. If a second pipe was not constructed, the alternative remained of buying additional supply.

#### Water Earnings For Sinking Fund.

Louisville, Ky.—An administrative policy that will reduce city taxes and make possible the levy of an additional estimated \$200,000 a year for the reconstruction and repair of streets and the construction of sewers by the transfer of the net earnings of Water Company to the Sinking Fund of Louisville, has been announced by Mayor Buschmeyer. The policy is based primarily on figures showing that Louisville water rents are the lowest in the country, making it a necessity no longer to decrease the net earnings of the company by additional discounts and placing the city owned water company on a dividend paying basis to the city direct instead of to the individual consumers through lowered water rents. The last annual report of the Water Company, made January 1, 1913, shows net earnings of \$384,887.57 over all expenses of operation including interest charges on the company's small bonded debt.

#### Wells Yield Abundant Supply of Water.

Healdsburg, Cal.—According to City Engineer Nelson, the city of Healdsburg now has one of the best pumping plants of any city of its size in the state. The new well has just been completed except for the covering, and the great pump installed. It is forty feet deep and thirty feet below the waters of the Russian river. It is twelve feet in diameter and inclosed in a curbing of solid concrete. At the bottom of the well great boulders were encountered, prevent-



ing the workmen from going deeper. From among these boulders the water gushes up in a torrent of very pure water. The big well yields 900 gallons of water every minute. Through the concrete curbing were drilled approximately 800 holes; in each of these holes was placed a supply pipe. The pipes are each plugged from the inside, so that in case more water is needed these plugs may be removed and the water allowed to gush in from the sides. Connected with the main well are three smaller ones, measuring from thirty to fifty-five feet in depth. The suction pipe from the larger well will also draw from these wells, giving an abundant supply.

#### Put Water Supply in Peril.

Atlantic City, N. J.—Petty thieves operating between this city and Pleasantville have imperiled the resort's water supply by removing bronze bolts from the pipe lines, six miles across the meadows. Many sections of the water mains have been almost entirely stripped of bolts, so weakening them that serious trouble might have been experienced had not the authorities discovered the systematic robbery.

#### Filtration Plant in Operation.

Geneva, N. Y.—Geneva residents are now being supplied with filtered water. One of the new filters has been started, and 1,700,000 gallons are pumped daily from the clear water reservoir into the storage reservoir which supplies the city mains. At present the residents consume about 800,000 gallons of water daily, so it is believed the filtered water can be supplied by operating one filter. The filtration plant, which cost \$40,000, was installed last year as a part of an expenditure of \$140,000 to improve the city water system. The balance was spent for a new covered reservoir, pumps, intake pipe and engine house.

### STREET LIGHTING AND POWER

#### To Reorganize Lighting System.

Pawtucket, R. I.—A maximum service at a minimum of cost is the problem that was put up to Superintendent of Street Lights Frank Harrop in the plan of reorganization of the city's lighting system in accordance with the terms of the amended contract entered into by the city and the lighting company last October. By the terms of this amended contract, the city secured the privilege of an all-night lighting service, as against a partial service under the old contract, with the added privilege of changing over the style of lamps in use and a relocation of such lights as the committee deemed advisable. The plan of reorganizing the system, in order that a maximum of service might be secured, included the elimination of all arc enclosed lamps formerly in use in the down-town section, and the substitution of the newer and better magnetite lights, about 200 of which had been installed in different sections of the city as opportunity offered during the past few years.

#### Invents Device to Reduce Operating Cost.

Nashville, Tenn.—By the installation of a device of his own invention at the city light plant Superintendent J. W. Pentecost has reduced the expense of operating the plant by about \$4,700 annually. Mr. Pentecost has secured a patent on the invention, which is described as an improved surface condenser, having means for automatically forming and maintaining a vacuum in the condenser by the use of the discharge condensing water. Heretofore these objects have been accomplished by means of a dry air or vacuum pump, the operation of which involved a considerable expense. By means of the device a column of moving water is utilized for the purpose for which a pump was previously employed.

#### Municipal Plants Yield Surplus.

Eugene, Ore.—That the total revenue of the combined water and light plants of the city of Eugene was nearly \$100,000 for the past year is shown by the semi-annual report, which has been filed with the city council, together with the figures made public last July, at the close of the first half of the fiscal year. Less than two-thirds of these

revenues were required for the operating expenses and the interest on the investment, and from the surplus over \$25,000 was expended in extension and repairs. This amount just about cared for the depreciation of the plans, leaving over \$15,000 to be applied on sinking fund.

#### Has Splendid Lighting System.

Niles, O.—This city has a splendid lighting system, every street being lighted with pedestal lights which are placed at intervals of 40 feet. The residents purchased the lamps and the city supplies all the current necessary. The current is bought by the city from a private corporation and is then sold to residents at 2 cents a kilowatt for domestic purposes.

### FIRE AND POLICE

#### Automatic Alarm System Demonstrated.

San Diego, Cal.—To demonstrate the working of the May-Otway Automatic Fire Alarm System a match was applied to several gallons of gasoline in an open receptacle in a storeroom in the Express block. Thirty-five seconds after the match was applied the alarm had been automatically sounded at the Second and E streets fire station. One minute and five seconds after the alarm had been received a motor fire apparatus reached the storeroom and firemen were ready to extinguish the blaze. The fundamental principle is that detectors having a strand of copper wire through them are installed in the room. When heat is generated by fire the copper wire expands, a plunger in the detector drops into a slot and makes a contact on the circuit which flashes the alarm to the fire station. The demonstration was for the purpose of showing the Council the workings of the system. It is probable that the Council will order the system on account of the protection it would give valuable records in the building.

#### Physical Tests For Police.

Auburn, N. Y.—Physical requirements for the members of the Auburn Police Department have been defined in General Order No. 4, which has been issued by Police Commissioner Edgar S. Jennings. In order to make a record classed as favorable, a policeman must be able to run a half a mile in less than 3 minutes, 15 seconds. The officer showing the desired physical qualities must be able to "chin" himself nine times and push himself up from the floor ten times. He must also raise his legs from a horizontal to a vertical position twenty times. The police surgeon, Dr. A. F. Hodgman, will make examinations of the policemen's hearts. In the order it is explained in detail how the heart reaction tests are made. The men will perform a certain form of exertion and then the effect on the heart will be noted. A strenuous program of class work has been outlined for the patrolmen.

#### Women Police Increased.

Chicago, Ill.—Chicago's experiment with police-women has proved so successful that Major M. L. O. Funkhouser, second Deputy superintendent of police, has announced that he will ask the City Council for funds to employ 15 more women police. "The women 'blue coats' have done a wonderful amount of good," said Major Funkhouser. "The 10 we have on the force have been assigned to dance halls and the curbing they have done there has been conducive to much good."

Pittsburgh, Pa.—Following the examples set by Chicago, Portland and Baltimore, Pittsburgh will have policewomen on its force in order to secure efficient rescue work among young girls. Mayor J. G. Armstrong and the City Council favored the proposition of adding women to the force after petitions were made to the Budget Committee by settlement workers.

#### State Firemen to Meet.

Parkston, S. D.—A largely attended meeting of the Parkston fire department has been held here to make arrangements for the meeting of the State Firemen's Association, to be held in Parkston, June 15 to 19. M. H. Mossman, of

Chamberlain, secretary of the state association, and A. C. Grant, of Yankton, treasurer, were present to help arrange the program. Guarantees were submitted for cash prizes to the amount of \$2,000.

#### Install Alarm System.

Augusta, Ga.—The wiring of the Gamewell police alarm system, both overhead and underground, will be completed within a few days. The system includes 41 boxes, 10 flash-lights and bells. It was decided to install the Gamewell system after a demonstration of its advantages was made by Mr. C. Best, representative of the Gamewell company.

#### Check Fire with Aid of Smoke Helmets.

Portland, Ore.—One of the new smoke helmets for firemen has been worn for the first time in this city by Battalion Chief Holden in a fire which destroyed connections of underground cables of the Pacific Telephone & Telegraph Company. Workmen were engaged in the manhole beneath the pavement repairing the damage to the cables from the recent storm when the fire started in some unknown manner. The workmen were driven from the manhole, and when the firemen arrived black clouds of smoke were pouring from the opening. Several attempts of firemen and workmen were made to enter the manhole, but without success, until Chief Holden donned the Draeger helmet and entered without hesitancy. It was largely through his efforts that the blaze among the cables was extinguished. He did not suffer the slightest inconvenience from wearing the helmet, and from this test he is convinced that the helmets will be of great service to firemen. These helmets were recently bought from the Draeger Oxygen Apparatus Co., of Pittsburgh, Pa.

### MOTOR VEHICLES

#### Committee Urges Use of Motor Truck.

Chicago, Ill.—In a report submitted by the Commissioner of Public Works and the Civil Service Commission, the city council's attention was directed to the economy of the motor truck. According to a table prepared by Engineer Dana, the saving in the cost of hauling by motor vehicles is from 4 per cent. for hauling two miles with a load, to 14.7 per cent. for hauling ten miles. The committee, therefore, said in the report: "The use of motor tractors will greatly decrease the cost of present haul and increase the garbage and rubbish service. The above studies indicate clearly the economy in the use of motor trucks for the haul of crushed stone and the materials for street repair work and an appropriation for at least two five ton trucks should be provided for in the 1914 appropriation."

#### Winton 6 for Salvage Corps.

Indianapolis, Ind.—The Indianapolis Salvage corps is now ready for operation. The new motor truck, a Winton 6, has arrived and made several demonstrations. The ex-



Courtesy Indianapolis News.

WINTON 6 MOTOR TRUCK.

pense of maintaining the corps will be met by fire insurance interests, through an assessment on the annual fire insurance premiums collected in the city. It is estimated that the cost of operation will be about \$15,000 a year. It has cost the fire insurance companies about \$10,000 to equip the corps. The city furnishes the quarters without rent and has spent about \$2,500 in remodeling the building to make it available.

#### Purchase Auto Fire Truck.

Rye, N. Y.—The firemen of Milton Point have purchased an automobile which will at once be fitted to meet their requirements. This will be the first piece of self-propelled fire apparatus the Rye village department has obtained, although touring cars of various department officials have been pressed into service frequently of late, in rushing chemicals and hose to fires. A 40-horsepower Locomobile has been purchased and is now being rebuilt. When finished for delivery, about March 1, it will be equipped to carry 1,000 feet of hose, extension ladders, hand chemical tanks and other light fire-fighting paraphernalia. The car will be capable of a speed of upwards of 40 miles an hour.

#### Install New Ambulance.

Bridgeport, Conn.—The handsome auto ambulance recently installed has attracted much attention at the city hall. The ambulance is well constructed and was consigned to the Danbury hospital. The body was made in Bridgeport by the Bridgeport Auto and Carriage Co. and the motor and chassis were supplied by the Packard Motor Co.

### GOVERNMENT AND FINANCE

#### Believes Pittsburgh's City Government Superior.

Pittsburgh, Pa.—Mayor Armstrong believes that the form of government in force in Pittsburgh, with an independent executive and a small Council, elected at large, is vastly superior to the commission form of government now in force in the third-class municipalities, an extension of which is being advocated for Philadelphia. In discussing this matter the mayor said that it is well that the legislative and executive departments are not interwoven in their authority, because the commissioners in their dual roles as executives and lawmakers are likely to be brought into support of appropriations and municipal legislation that is not for the best public interest. There is grave danger of an exchange of favors among commissioners delegated to the enactment of ordinances, the preparation of appropriations and the enforcement of various laws relating to the municipalities.

#### Investigation of Commission Government Favorable.

Hartford, Conn.—The commission created by the Court of Common Council to investigate the commission form of government has received many answers to inquiries sent out to cities where the commission form of government now obtains. In these inquiries cities were asked whether that kind of government was adopted by popular vote, if so, by what majority, how it operated and whether it had won popular favor. Among the cities who replied were: Lowell, Mass., Salt Lake City, Utah, Columbus, S. C., Topeka, Kan., and Cedar Rapids, Ia. In every instance a favorable opinion was rendered.

#### Will Have City Manager.

Montrose, Colo.—This city voted to establish a commission form of government by a majority of 172. The new plan will be put into effect within the next sixty days. Montrose is the first town in the West to adopt a city manager plan. The city manager will be an executive officer and will have entire charge of the employment of all city officers. He will receive a salary not to exceed \$800 a year and may or may not be a resident of the city. There



will be five commissioners, who will comprise the legislative body. They will be elected by the city at large and will draw a salary of \$10 a month each. It is expected that the new plan will save from \$1,000 to \$3,000 annually.

#### Commission Government for New Jersey Cities.

Passaic, N. J.—A supplement to the Walsh act, making it mandatory upon every municipality in the State which has not already done so, to adopt the Elective Commission form of government on the third Tuesday in March, 1915, will be introduced in the Legislature at one of the coming sittings. The amendment has been prepared by former Judge Robert Carey of Hudson County, who is confident of the success of the measure. It meets with the approval of many Electric Commission government advocates of the State. The adoption of such an act would give New Jersey a uniform municipal form of government and would eliminate cities and towns from the effects of ever-changing legislation. Judge Carey and his associates who are already working for the passage of the amendment declare that this is the best way to at once give home rule to municipalities.

#### Defeat Commission Form of Government.

Cherokee, Ia.—According to a communication from City Clerk Shardlow, the proposition of adopting the commission form of government was defeated by 90 votes. Only half of the voters seemed sufficiently interested to cast a vote on the question. Under the Iowa state law this proposition cannot be submitted again until two years have elapsed.

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### STREET CLEANING AND REFUSE DISPOSAL

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#### Chicago to Get Reduction Plant.

Chicago, Ill.—Victory for the city in its two years' war to force an equitable agreement with the officials of the Chicago Reduction Company for disposing of garbage came when Mayor Harrison told the members of the city council finance committee that the company had made an offer to have the city buy its property, plant and equipment. The mayor told the committee that the company had agreed to take \$275,000 for a clear deed to its land and reduction plant. Acceptance of the offer would nullify all condemnation proceedings and make the plant a municipally owned and operated reduction works. As the annual budget provided for a fund to acquire the plant and the council endorsed it, he told the committee that it was the best thing for the city to accept the offer. The committee concurred and the mayor intimated that the necessary papers would be signed in a short time.

#### Garbage Incinerator Produces Electricity.

Milwaukee, Wis.—The city engineering department is making Milwaukee garbage productive of electricity in quantities sufficient to operate large pumps. For ten days a new generating plant has been in operation, experimentally, and if estimates made on the basis of the few days of the experiment are fulfilled, the city will save a big sum in operating expense of one of its necessary utility plants. The development of electricity from the steam produced by incinerating the city garbage is only the latest phase of Milwaukee's garbage disposal work, the incineration plant having been accepted as a model for the last three years, and being widely copied in other American cities. The garbage is made to destroy itself, for about 15 per cent. of the substance collected is fuel for the destruction of the balance, which is rated as moisture. The incineration plant thus is operated almost entirely without purchase of outside fuel. The electricity produced is conducted across the city to operate pumps which flush the Milwaukee river, keeping a current down the stream.

#### Enforce Garbage Draining Ordinance.

Rushville, Ind.—Special instructions for enforcing that part of the garbage ordinance, which provides for the draining of all liquids from garbage, has been given men driving the city wagons by City Health Officer Smelser. Dr. Smel-

ser said that the necessity for drainage of the garbage before it could be placed in the furnaces caused the waste of several hours each day. Draining each wagon load requires half an hour, which when four wagons are hauling, wastes much time, according to the new health officer. He has instructed garbage haulers not to take garbage which has not been drained. Dr. Smelser said that liquid from the garbage should be drained into the sewers.

#### Plans to Install Incineration Plant.

Dayton, O.—Speaking before the charter commission ward workers City Manager Waite discussed the method of disposing of the waste which now produces the city dumps. Mr. Waite declared that he is making an exhaustive study of garbage and waste material and that one of the plans under consideration is the establishment of a city incineration plant, in which the offal will be reduced to a clinker that can be used for making concrete.

#### Will Install More Crematories.

Pensacola, Fla.—The new city crematory in Windy Valley is consuming all of the garbage of the city. The waste matter of each side of the city is burned on alternate days. From ten to twelve double-team loads are consumed each day by the crematory, the men employed there working until late every night. The city is now working three garbage wagons daily. It is the intention of the commissioners to ultimately erect several of these small crematories in various parts of the city, for the convenience of the various sections.

#### Must Have Garbage Can.

Elwood, Ind.—A determination to enforce the new garbage ordinance has been manifested by the new board of health when it issued a sweeping order to the effect that householders in the city must supply themselves with a metal garbage can and have it placed in a convenient place for the wagons to collect. It has also been announced that from now on the city would collect and remove free of charge, coal, ashes and cinders if they are placed in a convenient box.

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### RAPID TRANSIT

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#### Recommend Municipal Ownership of Car Lines.

Los Angeles, Cal.—That municipalization of the Los Angeles street car companies will result from the recent report of the city council by the board of public utilities seems quite likely. The board's report following an extensive investigation by engineering experts, placed the property's physical valuation at \$19,800,000, and recommended that the system be acquired by the city. It added that the company resorted to "dangerous practices," in 1913 by paying an \$800,000 dividend, "not warranted by the earnings." The board urges "a contract between the city and the company giving the former the right to purchase the various street railroad lines at reasonable intervals and at a fair price, not including franchise values."

#### State May Acquire Trolley Lines.

Providence, R. I.—A legislative joint special committee to inquire into the advisability of Rhode Island's acquiring all trolley lines operated in this state by the New Haven system is called for by a resolution introduced in the senate. This is in response to a strong public sentiment that the trolley roads should be managed for the development of Rhode Island business, with particular reference to suburban and farming districts, and make their revenues contributory to state maintenance rather than to alien stockholders.

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### MISCELLANEOUS

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#### To Abate Smoke Nuisance.

Nashville, Tenn.—Effective abatement of the smoke nuisance in Nashville, which has been discussed for many years, will probably be accomplished in the near future in consequence of the plan adopted by the smoke abatement commission at its adjourned meeting to bring suit against vio-

lators of the smoke abatement ordinance. Since the passage of the ordinance, in February, 1913, the commission and the inspectors upon whom devolved the duty of enforcing its provisions have refrained from resorting to any drastic measures. However as general atmospheric conditions have improved little since the establishment of the smoke inspection department, the inspectors will inaugurate a more drastic policy.

#### To Save Money by Suspending Employees.

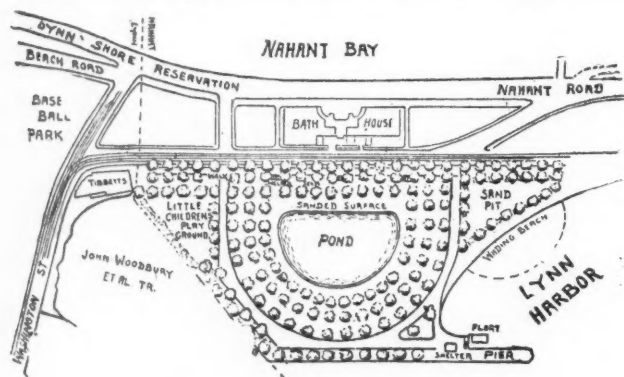
Pensacola, Fla.—The city commissioners have finally decided on a plan of economy which, it is estimated, will save the city not less than \$31,000 between the present date and October 1. This saving is necessitated by the fact that funds of the city are tied up in the two local banking institutions which failed recently. The economy will be accomplished by laying off nineteen men for one month and by a cut of 10 or 15 per cent. in the salaries of the heads of the fire and police departments and some of the minor officers in those branches of the city government. Just whose salaries will be reduced and how much has not been definitely decided. Chief Sanders, of the police department, and Chief Bickers, of the fire department, have graciously consented to a 15 per cent. cut if the same is found to be necessary.

#### City to Build 10,000 Houses.

Buenos Ayres.—The municipality of Buenos Ayres has contracted with the Compania de Construcciones Modernas to build 10,000 houses for employes and workmen, construction to be at the rate of 2,000 houses a year. The municipality has now applied to the government asking for exoneration from customs dues on the materials imported for the buildings.

#### To Turn Flats Into Playgrounds.

Lynn, Mass.—A tentative plan of the Metropolitan Park Commission, here presented, provides for a children's playground to be constructed on the filled land at the eastern corner of Lynn Harbor. This corner has long been a nuisance with its foul smelling flats. A bulkhead from Lynn Yacht Club to the Nahant-Lynn and Metropolitan Park reservation lines will be paid for by property owners. The material being unloaded on the flats between the bulkhead and Washington street comes from the dredging now



PLAN FOR PLAYGROUND.

being done in the harbor. A pier 750 feet long will be constructed. At the end of the new area towards the Tibbetts hostelry the Metropolitan Park Commission plans to lay out a little children's playground. At the other end will be a sand pit. Between will lie a spacious, tree-planted area some 500 feet by 700. In the middle of this will be a pond, a safe swimming pool for the children, oval in shape and about 300 feet and 200 feet at its greatest length and width.

#### Recreation Park Planned.

Washington, D. C.—Willow Tree alley, formerly notorious as the worst slum in the District, is about to blossom into a most attractive recreation park. The District Commissioners and Col. Harts, the army engineer officer in charge of public buildings and grounds, are co-operating to that end and their plans will be put into effect during the coming spring. The land consists of the interior of square 534 and is about 300 feet by 200 feet in area. It was ac-

quired by condemnation proceedings under an act of Congress approved March 2, 1911, appropriating \$78,000 for the purpose of transforming the area into an interior park and playground. About \$16,000 is available for the improvement of the area. As planned the area is to be developed into a combination recreation park and playground, considered primarily from the standpoint of upkeep and maintenance.

#### Would Make Savannah a Convention City.

Savannah, Ga.—Mayor R. J. Devant hopes that the legality of the election involving the issuance of bonds for \$200,000 for erecting a municipal auditorium will soon be favorably disposed of by the court. It is his object to make of Savannah a convention city. In this connection Mayor Devant said: "For utilization in efforts to secure conventions and otherwise give to the city proper publicity, an appropriation of \$6,000 has been made in the 1914 budget, its expenditure subject to the approval of Council. When the auditorium is built there should be an ordinance against its use for local political meetings and provision should be made in each annual budget for continued efforts to secure conventions. There is no reason why Savannah should not become one of the recognized great convention cities of the land."

#### Mayor Writes to Successor.

Akron, Ohio.—Desiring to transmit to his successor in office in 2014 a full account of the conditions surrounding his administration, Mayor Rockwell has prepared an elaborate letter. This document contains a full description of Akron, gives its financial condition, tells the names of its officials, and explains the various municipal problems with which they are struggling more or less hopefully and successfully. The letter is to be placed in a safe deposit vault under seals to be kept inviolate for the full hundred years.

#### Plan Municipal Market.

Muncie, Ind.—A special committee of Council has formulated plans to change a city building, which was formerly used as an annex to the central fire station, into a municipal market place. The cost for proper alterations will be nominal. The question as to whether a market place will prove practical in the city has long been a matter of conjecture. Several years ago a similar project was launched, but nothing came of it. The farming community upon which the success of the market largely depends, failed to respond to a call made by interested persons and did not take advantage of the offer tendered them.

#### Statuary to Have Proper Sites.

Philadelphia, Pa.—Relative to future disposition of statuary provided for Fairmount Park and other large public play areas, it has been announced at the forty-second annual meeting of the Fairmount Park Art Association that care will be taken first to select proper sites and environments and then to place each and every statue where it will add most to scenic beauty. L. W. Miller, secretary of the association, made the announcement, which will directly affect the location of the proposed Ericsson and Morris memorials for which sufficient funds will be in hand before the close of another month.

#### Chicago Municipal Store Opened.

Chicago, Ill.—Chicago's first municipal store which the city council recently authorized with an appropriation of \$25,000 and at which groceries are to be sold at cost to the poor has been opened. If the market proves a success, meats and wearing apparel also will be sold and other stores opened in different sections of the city.

#### Municipal Electrical Supply Store.

Kansas City, Mo.—This city has opened a municipal store to sell electrical appliances. The city has a municipal water plant, a municipal light plant, is planning a municipal ice plant and is now going to reduce the high cost of living further by establishing a store where lamps, electrical stoves, and all manner of electrical household appliances are to be sold. The middleman's profit in handling these electrical appliances was found to be so much that many who desired them could not purchase them.



**LEGAL NEWS****A Summary and Notes of Recent Decisions—  
Rulings of Interest to Municipalities****Snow and Ice on Sidewalks.**

Mayo v. Village of Baraga.—A municipality is not negligent simply because it omits to protect pedestrians from dangers incident to the accumulation of ice and snow on sidewalks from natural causes.—Supreme Court of Michigan, 144 N. W. R., 517.

**Streets—Expenses—Liability of Railroad Company.**

Chicago, M. & St. P. Ry. Co. v. Village of Le Roy.—The entire cost and expense of extending the new street across the right of way, including necessary planking over the railroad tracks, was properly imposed upon the railroad company.—Supreme Court of Minnesota, 144 N. W. R., 464.

**Sidewalks—Steep Grade—Negligence.**

Dougan v. City of Seattle.—In an action by one injured by a fall on a sidewalk which was at a grade of about 13 per cent., the court cannot as a matter of law hold that the municipality was negligent in laying it without cleats; the question of negligence being one of fact for the jury.—Supreme Court of Washington, 133 P. R., 1165.

**Local Improvement—Reasonableness of Ordinance.**

City of Ottawa v. Colwell et al.—To authorize the courts to interfere with the determination of city authorities that an improvement ordinance is reasonable, abuse of the discretion of the city authorities themselves in ordering the improvements must ordinarily appear upon the face of the ordinance.—Supreme Court of Illinois, 103 N. E. R., 573.

**Officers—Removal—Abolition of Office.**

Harker v. Mayor and Council of City of Bayonne.—The abolition, in good faith and for the betterment of the public service, of an office held by one within 4 Comp. St. 1910, prohibiting the removal from office of any honorably discharged soldier or sailor of the United States, except for cause and after a hearing, is not illegal, for the purpose of the act is to protect persons within it against removal without cause, but without interfering with the power to abolish offices for the public good.—Court of Errors and Appeals of New Jersey, 89 A. R., 53.

**Actions for Injuries—Notice.**

Hartsell v. City of Asheville et al.—Under such section a person who, by reason of an injury, was confined to a hospital and practically helpless for three months, but who was visited every day by her daughter, and who was both mentally and physically able through her friends to give notice of her injury, was not, by reason of her disability, relieved of the duty of giving the statutory notice.—Supreme Court of North Carolina, 80 S. E. R., 226.

**Collection of Tax—Directions to Collector.**

City of Rockland v. Farnsworth.—While a general written direction to a collector to bring suit against all delinquent taxpayers is insufficient as giving to him the power to exercise discretion in particular cases, and while the particular parties against whom suit is to be brought should be named, a single written direction to sue for each year's tax, instead of a separate direction covering the taxes for each of several years, was not necessary.—Supreme Judicial Court of Maine, 89 A. R., 65.

**Primary Election Laws in Ohio—Construction.**

Fitzgerald et al., Board of Deputy State Supervisors, etc., v. City of Cleveland.—Const. article V, section 7, relative to primary elections, and article XVIII, relative to the nomination and election of municipal officers and municipal authority in connection therewith, having been adopted as amendments to the Constitution on the same day, must be construed together, and effect must be given to both, and differences, if any, must, if possible, be reconciled.—Supreme Court of Ohio, 103 N. E. R., 512.

**Defects in Sidewalks—Variance From Grade.**

Beirness v. City of Missouri Valley.—The construction of a sidewalk at a grade of 14.79 per cent., whereas the estab-

lished grade was 13 per cent., cannot be held to be a contributing cause to a fall on ice formed thereon, since it is a mere matter of speculation whether the accident would have happened, but for the variance from the established grade.—Supreme Court of Iowa, 144 N. W. R., 628.

**Officers—Removal—Remedy.**

McGrath v. Mayor and Council of City of Bayonne.—Protecting exempt firemen from removal from a public office or position except on charges and a hearing, does not apply to the position of assistant building inspector of a city, created by resolution of its council pursuant to statutory authority, and fixing the term of office for one year when the term of an appointee has expired.—Court of Errors and Appeals of New Jersey, 89 A. R., 49.

**Regulating Use of Real Estate—Property Rights.**

People ex. rel. Friend v. City of Chicago.—There being nothing inherently dangerous to the health or safety of the public in the conduct of a retail store, an ordinance, making it unlawful to locate or construct any retail store in any block used exclusively for residence purposes without the consent of the owners of a majority of the property fronting on both sides of the street, rests solely upon aesthetic considerations wholly unrelated to the public health, morals, comfort, or general welfare, and hence is invalid.—Supreme Court of Illinois, 103 N. E. R., 609.

**Street Improvement—Specifying Kind of Wood.**

City of Decatur v. Barteau et al.—Where an ordinance for paving a street with creosoted blocks provided that the wearing surface should consist of either yellow pine or tamarack timber creosoted, and the city's evidence showed that the two kinds of wood, when creosoted and used for paving purposes, cost practically the same and were of equal durability, the ordinance was not objectionable for failure to specify whether yellow pine or tamarack should be used.—Supreme Court of Illinois, 103 N. E. R., 601.

**Streets—Acquisition by Prescription.**

Barnard Realty Co. v. City of Butte.—Rev. Codes, declaring that all highways, roads, streets, and alleys now used by the public are public highways, and that no route of travel used by one or more persons over another's land shall hereafter become a public road by use until so declared by the board of county commissioners, apply to streets in a municipality, even though section 3259 makes them subject to the control of municipal authorities, and require such a declaration by the officials of the municipality having authority corresponding to that of the board of county commissioners.—Supreme Court of Montana, 136 P. R., 1064.

**Trespass by Agents and Officers—Liability.**

Persons v. Valley City.—Where a city council, acting in its official capacity, authorizes the city's agents and officers to construct a sidewalk adjacent to plaintiff's property, and, through a mistaken belief that a portion of plaintiff's building extends into the street and is an unlawful obstruction thereon, authorizes such agents or officers to remove the same by going upon such private property and cutting off the portion of the building claimed to thus form an obstruction, and committing other acts of trespass thereon, the municipality is liable, and must respond in damages for such wrongful trespass.—Supreme Court of North Dakota, 144 N. W. R., 675.

**Street Improvement—Invalid Ordinance.**

City of Chicago v. Arnold et al.—The city of Chicago enacted an ordinance providing for the widening of a street, already well paved and flanked by sufficient sidewalk, by condemning a 50-foot strip on each side. The ordinance did not provide how the condemned strip should be paved, but merely declared that the commissioner of public works should put the surface of the street in such condition that it could be used for public travel. Held, that the ordinance was void and unreasonable if the city's contention that the strips condemned should not be paved could be upheld, and it was also void if the ordinance could be construed as allowing the commissioner to determine the mode of pavement because containing an unreasonable delegation of power.—Supreme Court of Illinois, 103 N. E. R., 587.

## NEWS OF THE SOCIETIES

### Calendar of Meetings.

January 28-30.  
ILLINOIS SOCIETY OF ENGINEERS AND SURVEYORS.—Annual Meeting, Peoria, Ill. E. E. R. Tratman, Secretary, 1144 Monadnock Block, Chicago, Ill.

January 29-31.  
CANADIAN SOCIETY OF CIVIL ENGINEERS.—Annual meeting, Montreal, P. Q. Prof. C. H. McLeod, Secretary, 176 Mansfield street, Montreal, Canada.

February 10-11.  
CONNECTICUT SOCIETY OF CIVIL ENGINEERS.—Annual Meeting, Hartford, Conn. J. Frederick Jackson, Secretary, Box 1304, New Haven, Conn.

February 10-11.  
VIRGINIA ROAD BUILDERS' ASSOCIATION.—Third Annual Meeting, Murphy's Hotel, Richmond, Va. C. L. Scott, Jr., Secretary, Harrisonburg, Va.

February 11-14.  
OHIO ENGINEERING SOCIETY.—Annual Meeting, Columbus, O. D. W. Seitz, Secretary, Columbus, O.

February 12-13.  
SOUTHEASTERN SANITARY ASSOCIATION.—Second annual meeting, Columbia, S. C. Dr. James A. Hayne, President, Columbia, S. C.

February 12-13.  
NORTH DAKOTA SOCIETY OF ENGINEERS.—Annual Convention, Fargo, N. D. E. F. Chandler, Secretary, University of North Dakota, Fargo.

February 12-14.  
NATIONAL CONFERENCE ON CONCRETE ROAD BUILDING.—Auditorium Hotel, Chicago, Ill. J. P. Beck, Secretary, 72 West Adams St., Chicago, Ill.

February 16-20.  
NATIONAL ASSOCIATION OF CEMENT USERS.—Fourth Annual Convention, Chicago, Ill. Edward E. Krauss, Secretary, Harrison Building, Philadelphia, Pa.

February 18-20.  
IOWA ENGINEERING SOCIETY.—Annual Meeting, Council Bluffs, Ia. S. M. Woodward, Secretary, Iowa City, Ia.

February 24-25.  
MINNESOTA ENGINEERS' AND SURVEYORS' SOCIETY.—Annual Meeting, St. Paul, Minn. Wm. Danforth, President, 411 Hackney Building, St. Paul, Minn.

February 26-27.  
INDIANA SANITARY AND WATER SUPPLY ASSOCIATION.—Seventh annual meeting, Hotel Severin, Indianapolis, Ind. Dr. W. F. King, Secretary, Indianapolis.

### Southwestern Water Works Association.

The executive committee has selected June 15-17 as the time for the next meeting which will be held at Tulsa. Owing to the influence of Mayor F. M. Wooden and Luke L. Ballard, superintendent of the water works, exhibitors have been relieved of all charges for floor space. The members, who are located in Arkansas, Kansas, Louisiana, Missouri, Oklahoma, Texas and New Mexico, are showing great interest in the meeting, which promises to be the largest ever held by this association.

### Tennessee Municipal League.

The annual convention was held at Knoxville, January 22. The league declared for the enactment of legislation establishing a tuberculosis hospital in each of the three grand divisions of Tennessee; the publication of a municipal journal, issued quarterly, disseminating information on any public improvement contract let by the various municipalities; the adoption of a uniform system of bidding through an educational campaign on civic improvement contracts; a committee to cooperate with similar leagues and draft laws for an equalized system of taxation on manufacturing plans and legislation dealing with abutting property taxation. The dues of the league were raised 50 per cent.

### Engineers' Society of Western Pennsylvania.

At a meeting January 20 the following officers were elected: Albert R. Raymer, president; vice-president, Samuel E. Duff; treasurer, A. E. Frost; directors, George H. Neilson and Fred Crabtree. The membership is now 1,124.

### Indiana Sanitary and Water Supply Association.

The program for the meeting at Indianapolis, February 26-27, is in course of preparation. Among the speakers will be H. M. Waite, city manager, Dayton, O.; Dr. John McMullen, surgeon U. S. Public Health Service; Thomas Duncan, chairman Indiana Public Service Commission, and W. E. Longley, Indiana State Fire Marshal.

### Arkansas Good Roads and Drainage Convention.

The meeting was called to order by Judge W. A. Coker, president, Hotel Marion, Little Rock, January 14. Among the speakers and topics discussed were the following: Governor Geo. W. Hays, "Where I Stand on Road Construction"; A. V. Smith, "The Arkansas Good Roads Law, Its Purpose and Results"; W. B. Owen, secretary State Highway Commission, "The Possibilities of Road Improvements in Arkansas"; E. S. Kingsley, "Earth Road Construction and Maintenance"; D. M. Potter, "The Great Southern Highway"; Martine Nelson, director Agricultural College, "How Bad Roads Retard Good Agriculture."

### Illinois Firemen's Convention.

The twenty-sixth annual convention was held in Canton, Ill., January 15-16. The number of fire departments in the association is 190, and the financial condition is good. Mattoon was selected for the 1915 meeting. The following officers were elected: President, James J. Dougherty, Ottawa; vice-presidents, Pearl Smith, Madison; Otto Reiche, Napierville; F. T. Denny, Vandalia; Fred E. Danner, Mount Pulaski; Albert Haase, Peru; Henry Kluge, Collinsville; H. E. Kutz, Morris; A. W. Thode, Galena; M. S. Phillips, Chicago Heights; secretary, Walter E. Price, Champaign; treasurer, Michael T. Quirk, Arcola; statistician, Simon Kellerman, Edwardsville. National representatives are as follows: J. J. Dougherty, Ottawa; C. C. Chain, Bushnell; M. J. Meyer, Mount Pulaski; Henry Bolte, Springfield.

### Municipal Engineers of the City of New York.

The United Electric Light & Power Company has invited the Municipal Engineers of the City of New York and the Brooklyn Engineers' Club to be present at the formal opening of its new generating station (the most modern and largest in the world), located at West 201st street and the Harlem river, on Saturday, January 31, at 11:30 o'clock in the forenoon. The premises

may be reached from the Dyckman street station of the Broadway subway.

After the opening of the power station and through the courtesy of the Terry, Tench & Proctor Tunneling Machine Company, the members are also invited to inspect one of the company's machines operating under test conditions at Broadway and 223d street, a short ride by surface car or subway from the power house of the United Electric Light & Power Co. The machine is excavating a tunnel 8 feet in diameter, in rock. It is of novel type, the result of six years' experimentation. The cutting element is a full-sized rotating head, bearing 15 powerful automatic chipping hammers.

### Brooklyn Engineers' Club.

The first meeting of the club for the new year was held January 8 in the clubhouse, 117 Remsen street, with President Edwin J. Fort presiding. About 100 members were present, all of whom were keenly interested in the paper of the evening presented by Frederick W. Koop, engineer-in-charge, Division of Triangulation and Precise Levels, Board of Estimate and Apportionment. Mr. Koop's paper was illustrated by lantern slides and was entitled "A Universal Datum Plane for New York City."

President Fort announced his committee appointments for the coming year, and the appointments apparently met with universal satisfaction. W. T. Chevalier, for the Entertainment Committee, reported that all of the dates for the regular monthly meetings, as well as for the Thursday evening informal library talks, were filled until April, and the program mapped out by this committee of the club looms large in civic, as well as engineering, interest. One of the pleasant features of the evening was the presentation to President Fort of a rosewood gavel. In extending a vote of thanks to Mr. Koop for his paper of the evening, President Fort stated that, "for many years to come, the members of the club, and engineers who are not members, will have frequent occasions to refer to the valuable data contained in Mr. Koop's paper," and, he said, he considered it a contribution of extreme value to engineering literature.

Discussing the desirability of a universal datum plane, Mr. Koop said:

"On account of this multiplicity of datums, many entirely new systems of levels have been established, and a great amount of computations, of use only to the particular department concerned, have been required. Because of the unsatisfactory and more or less imaginary character of many of the datum planes, there has been during recent years a growing desire on the part of the city engineers of all boroughs to secure the official adoption of one datum plane for the whole city. While such a departure from previous practice would doubtless result in some temporary confusion, it would be a simple matter for each department to include on all maps and plans a note explaining the relationship between the new universal datum and the one heretofore in use in such department."



## PERSONALS

Allen, Henry C., Syracuse, N. Y., formerly city engineer, has opened an office as consulting engineer. He is chief and consulting engineer of the Syracuse Grade Crossing Commission.

Mr. and Mrs. W. S. Babcock entertained at luncheon on January 23 at the Whitehall Club, New York City, Mr. Hunter McDonald, the incoming president of the American Society of Civil Engineers, and Mr. George Swain, the retiring president, and their wives. Among those present were the following: Mr. and Mrs. George Swain, of Harvard College; Mr. and Mrs. Hunter McDonald, of Nashville, Tenn.; Mr. and Mrs. G. W. Kittredge, Colonel and Mrs. J. A. Ockerson, Mr. and Mrs. Thomas M. Rianhard, Mr. and Mrs. C. Warren Hunt, Mr. and Mrs. S. L. F. Deyo, Mr. and Mrs. Rudolph P. Miller, Mr. and Mrs. George L. Lucas, Mr. and Mrs. William H. Childs, Mr. and Mrs. J. Waldo Smith, Mr. and Mrs. Alfred Craven, Mr. and Mrs. Alfred Noble, Mr. and Mrs. Allen Hazen, Mr. and Mrs. W. G. Triest, Mr. and Mrs. W. S. Babcock.

Biggs, Dr. Herman M., New York City, formerly chief medical director, New York City Health Department, has been appointed Commissioner of Public Health of New York State.

Copeland, Wm. R., New York City, chief chemist and bacteriologist of the Metropolitan Sewerage Commission, New York City, has been appointed chief chemist of the Milwaukee Sewerage Commission.

Eglee, Charles H., Boston, Mass., formerly general manager of the Amhusen Hydraulic Construction Co., has become connected with the Aberthaw Construction Company, and will have charge of the dam and reservoir work of that company.

Hill, Otto L., Port Huron, Mich., has been elected superintendent of streets and public improvements.

Howell, Robert P., M. Am. Soc. C. E., has been elected one of the five Commissioners of Phillipsburg, N. J., to take the place of the Common Council, voted out of existence by the people of that town last fall. Mr. Howell has been town engineer for ten years, and is a graduate of Lehigh University. The other members of the Commission are Oscar Bates, Frank Kneedler, Hector Britton and John Perdoe. Mr. Bates has been inspector of pipes and castings for the city of Boston and New York, at the Warren Foundry in Phillipsburg, for many years. Mr. Kneedler has been the Town Clerk for 23 years. Mr. Britton has been a Councilman for two years, and for the past two years tax collector. Mr. Perdoe was a former Mayor.

Hurburt, Thos. M. and H. A. Rondo, have formed the firm of Hurburt & Rondo, civil engineers, 302 Henry Building, Portland, Ore.

Joseph, Erich, New York, N. Y., has become general manager of the Orenstein-Arthur Koppel Company, succeeding A. Reiche, who has become managing director of a German manufac-

turer of locomobiles. Mr. Joseph, who was the New York manager, has been connected with the company for many years.

Kalbach, Andrew E., New York City, has been appointed deputy commissioner of street cleaning, Borough of Bronx.

Oates, B., Pittsburg, Pa., has been appointed mechanical engineer, Morris County Crushed Stone Co., Morristown, N. J.

Reeder, Wm. C., Philadelphia, Pa., has been appointed assistant director of public works, of Philadelphia.

Sherer, H. H., Evanston, Ill., formerly superintendent of the street department, has been appointed business manager of Glencoe, Ill.

Thornton, L. Earle, Pensacola, Fla., has been appointed city engineer succeeding George Rommel.

Tompkins, Edward deV., consulting and construction engineer, New York City, has been appointed second deputy commissioner of docks and ferries.

Walker, Edward L., New York City, formerly supervising engineer, Department of Water Supply, Gas and Electricity, has been appointed assistant engineer of the Pennsylvania State Water Supply Commission with headquarters at Harrisburg.

The following officers have recently been elected or appointed:

South Bend, Ind.—City engineer, W. S. Moose, reappointed. Assistants, F. J. Anderson and W. E. Graves. President board of health, Dr. F. P. Eastman. Board of works, E. M. Morris, president, A. H. Rice and T. B. Weber. Board of safety, B. F. Augustine, president, J. A. Hibberd and C. S. Butler.

Ogden, Utah.—Superintendent of Public Safety, T. S. Browning; Superintendent of Streets, Chris Flygare.

Saginaw, Mich.—Commissioners has been assigned to departments as follows: Finance, William F. Jahnke; Health and Safety, Ard E. Richardson; Public Works, George Holcomb; Light, Water and Sewers, Robert F. Johnson; Parks and Cemeteries, William H. Reins; Vice-President of Council, Robert F. Johnson; City Clerk, Herbert S. Gay; Chief of Fire Department, Geo. W. Wallis; Chief of Police, Jos. P. Walsh; City Engineer, H. H. Eymer.

North Plainfield, N. J.—President of Council, Julius J. Stahl.

Dunkirk, N. Y.—Member Board of Fire and Police, John J. Dean; Fire Chief, John F. Meiers, re-elected.

Waynesboro, Pa.—President of Council, A. R. Warner; Borough Engineer, George C. Bream; Chief of Police, S. W. Staley, re-elected; Superintendent of Fire Department, A. Stover Fitz.

Lockport, N. Y.—Superintendent of Water Works, James O. Bogardus.

Dover, Del.—Mayor, W. M. Hazel. Warsaw, Ind.—Superintendent of County Roads, George McKrill.

North Vernon, Ind.—Superintendent of Highways, Frank Kellar.

Covington, Ky.—Chief of Fire Department, E. A. Griffith; Superintendent of Public Works, Arnold Schweinfuss.

Shelbyville, Ind.—Mayor Henry Schoelch. City clerk, Stanley Jones. Chief of police, G. M. Haehl. City engineer, G. J. McBride. Fire chief, James Briggs. Street Commissioner, Wm. Ballard.

Alexandria, Ind.—Appointments by Mayor Wales. Chief of Police, L. E. Donahoo. Fire chief, J. F. Merker. Board of public works, Harmon, Kelly and Rutledge. Water works, Allman and Rutledge. Board of safety, Allman, Kelly and Harman. Electric light, Kelly and Harman.

Anderson, Ind.—Appointments by Mayor J. H. Mellett. City comptroller, Wm. C. Richter. City engineer, Elmo Funk. Police commissioners, L. Meyers, F. E. Mustard and C. I. Kemery. Board of public works, Harvey Urban, Samuel R. Heavlin and Edward Stanton. Secretary board of health, Dr. E. E. Broch.

Hartford City, Ind.—Street commissioner, Delnor Fulton. City engineer, Wm. Harley.

Dunkirk, Ind.—City engineer, O. O. Clayton. Fire chief, C. D. Wright. Board of health, Dr. E. C. Garber.

La Porte, Ind.—Appointments by Mayor McGill: Swan A. Swanson, city controller; Lee L. Osborn, city attorney; William Plambaeck, street commissioner and member of board of public works; L. Drew Goddard, city engineer and member of board of public works; John H. Harding, superintendent of the water works; Dr. Harry J. Thompson, Dr. W. S. Fisher, and Dr. A. R. Simon, city board of health. The Mayor is the third member of the board of public works, and also president. Abram Sommerfield, police commissioner, to fill vacancy caused by resignation of Fred Henoch.

Brazil, Ind.—City engineer and street commissioner, F. C. Wilson. Fire chief, Fred Urban, Jr.

New Bedford, Mass.—Committees on the part of the common council: Armories—Percy, Borden and Fernandes; Audit—Cassidy, Jones and Parker; Bath Houses—Leveille, Duckworth and Fernandes; Buildings in the Fire Districts—Chase, Weaver and Peirce; Charities, Almshouse and the Poor—Collins, Schuler and Moriarty; City Property—McCarty, Hamel and Peirce; Finance—Lacroix, Collins, Kelleher, Schuler, Woodward and Watling; Fire Department—Goodfellow, McCarty and Percy; Roads, Bridges and Sewers—Peirce, Leville and Borden; Street Lights—Hamel, Collins and Bentley; Water Works and Water Supply—Lacroix, Leveille and Percy; Wharves—Barrows, Moriarty and Fernandes.

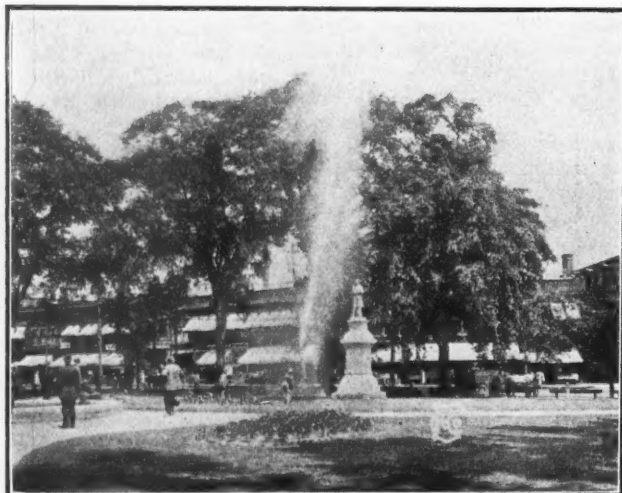
Belmar, N. J.—President of council, G. W. Van Note. Mayor Poole named the following committees: Finance—George W. Van Note; Highway—Ferdinand Stines; Fire—Nathan C. King; Lights—James B. Housel; Sewer and Sanitary, Willard J. Sterner; Police—Thomas S. Dillon; Laws and Ordinances, Willard J. Sterner. Upon recommendation by council Mayor Poole was continued on the water committee.

## NEW APPLIANCES

### POWER SPRAYERS.

#### High Pressure and Solid Stream Necessary for Economy.

There are few parts of the country where shade trees can be maintained in a healthy condition without spraying. Spraying may be done by either of two methods—mist or solid stream. In mist spraying the nozzle delivering

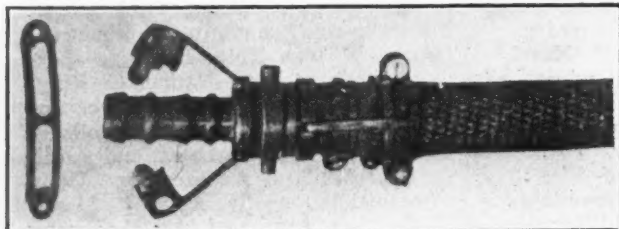


SOLID STREAM TO TOP OF TREES.

the solution must be carried close to the foliage to be sprayed. In solid stream work the men holding the nozzle stand on the ground, and on account of the high pressure in the pipe lines can cover the tallest trees. Mist spraying is all right for shrubbery and some agricultural work. For municipal purposes the high pressure sprayer has no competitor. The manufacturers of high pressure appliances state that a saving of 80 per cent of the cost of mist spraying can be effected.

According to experiments conducted by the Fitzhenry-Guptill Company, 49 North Washington street, Boston, Mass., at least 225 pounds per square inch pressure at the nozzle is required to do the most effective work, to which must be added the loss of pressure due to friction in the hose. In municipal work the lines average about 500 feet and may be 1,500 feet. It is often necessary to raise the initial pressure to 350 pounds.

The secret of economical spraying is to use a machine capable of spraying all the trees from the ground and reduce as far as possible the labor item.

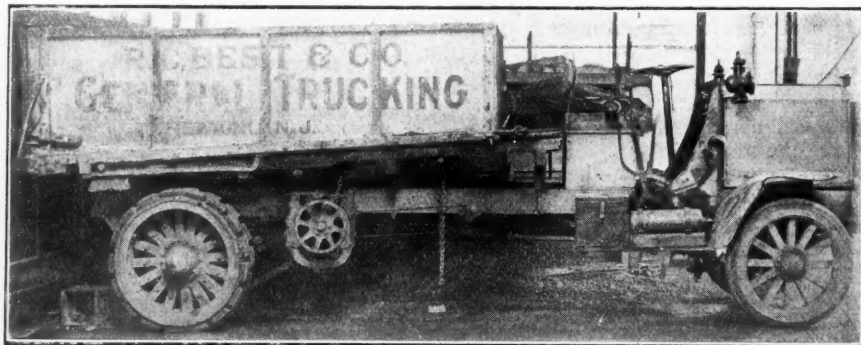


DETAIL OF COUPLING.

The 1914 model of the Fitzhenry-Guptill machine is made to meet these conditions. The Standard A machine is a solid stream apparatus capable of handling one 5-16-inch, and two 1/4-inch open bore nozzles on long lines of hose with sufficient pressure to properly form the mist-like cone at the top of the solid stream essential to efficient work. Four of these machines were operated by the Boston Park Department for three consecutive hours, maintaining from 275 pounds to 300 pounds nozzle pressure on two 1/4-inch open-bore nozzles, delivering free.

This machine carries in a tank 400 gallons of solution. The pump is of the triplex type, made of phosphor bronze. It is operated by a 10-14 h. p. 4-cylinder gasoline motor. For general purposes a horse power machine is cheaper than an automobile, although the motor apparatus has a field of its own.

Important details of the outfit are the nozzles. The Worthley nozzle, made by the Fitzhenry-Guptill Company, has been modified a little in the 1914 model so as to reduce friction and deliver a smoother stream. Leaky



5-TON PACKARD TRUCK AFTER TWO YEARS' SERVICE.

couplings are one of the possible annoyances of solid stream work. Covered hose is recommended, as the outer jacket gives support and takes the wear caused by dragging. The couplings made by this company are Albee couplings shown in the cut, which have large waterways and grip the hose in such a manner as not to injure the inner tube or be peeled off.

### PACKARD MOTOR TRUCKS.

#### Features of Five-Ton Model—Experience of Trucking Contractor With Five Machines.

Packard trucks are built in four sizes, two, three, five and six tons capacity by the Packard Motor Car Company, Detroit, Mich. The models are all separate and distinct from the passenger vehicles made by the same company. Each capacity truck has a motor of its own. The five ton truck motor has cylinders with 5-inch bore and 5 1/2-inch stroke. It develops 40 horse power at 1,000 revolutions per minute. Maximum speed is regulated by a governor which is set and locked up. The five ton truck runs from 8 to 10 miles per hour. The Packard dry plate clutch is a device which deserves consideration. It consists of a series of plates alternately connected with a casing bolted to the fly wheel and a spider attached to the clutch shaft. The casing plates are covered with a special friction material, the spider plates having a plain metal surface. The clutch engages gradually and is positive in its action.

The cylinders of the 5-ton Packard are cast in pairs with integral water jackets and valve chambers. The crank shaft has three large main bearings supported by massive webs. The inlet and exhaust valves are on opposite sides of cylinders. The carburetor is of a patented design, made by the company. Gasoline is supplied by gravity from tanks under seat. The Eisemann

dual system of ignition is used. The system of lubrication is particularly complete, oil being supplied at 39 points. There is a completely enclosed and sealed automatic governor for main throttle control; secondary throttle for regulation of speed within limits of automatic throttle is controlled by foot pedal for ordinary driving and by hand lever on dash for starting. The speed changing and differential gears are contained in a rigid jackshaft unit. The final drive is by sprockets and side chains to rear wheels. Both the front and rear axles are heavy solid steel



drop forgings; front rectangular in section; rear I-beam in section.

R. C. Best, Brantford Place, Newark, N. J., has had two years' experience with Packard 5-ton trucks. Two of these have Shadbolt hand-operated end-dumping bodies and are rented to contractors either by the day or load. When working for the Standard Bitulithic Company last summer the trucks made three loads each on a haul of 13 miles one way, making a daily record of 78 miles. Not one of the five Packard trucks broke down last year. Asked as to what length haul he considered economical for 5-ton trucks like these, Mr. Best said that about two miles was, according to his experience, about the minimum economic limit for operating the trucks in competition with teams. Special conditions as to loading and unloading of course might modify the general rule.

### VACUUM CLEANER.

#### Easily Constructed Auxiliary for Laboratory, Plant or Shop.

A vacuum cleaning outfit is a valuable auxiliary for a laboratory plant or shop, and it can be installed at comparatively little expense. A rotary blower, such as that made by Leiman Brothers, 62 John street, New York City, is the principal piece of equipment. This blower may be needed for other purposes, as for operating blow pipes, gas furnaces, sand blasts, agitation filtering devices, etc. A blast of air is about the only practical means of cleaning dust and dirt from intricate parts of machinery.

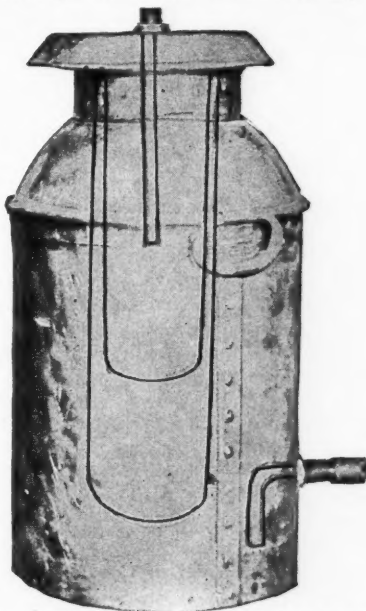
The Leiman blower is used for vacuum cleaning by means of the following simple devices. The illustration shows how a simple separating tank can be constructed. This is made of an ordinary 40-quart milk can. The cover of this can forms an air-tight tank, and, therefore, is especially adapted for this work. A round hole is cut in the cover and a pipe connection made, as shown in detail in the sketch. The pipe or hose connecting the tank with the cleaning tool is attached at this connection. The connection from the can to the pump is made at the bottom in the same manner as above. This can is to act as a screen and to prevent the dust and dirt from entering the pump, and it, therefore, becomes necessary to provide a screen in the can to catch the dust and dirt. This is provided for by means of a bag made in suitable shape to set into the can about three-fourths of the way down and made to rest over the neck of the can in such a manner that the cover will be drawn over the top, holding it secure. This bag may be made of some suitable material, such as canvas, canton flannel or suitable silk bolting cloth, depending on the amount of dust and dirt to be removed. The connection to the pump is made by means of a pipe nipple and a union. The machine



INTERIOR VIEW

is now ready for operation after attaching a belt to the pump from a motor or a line of shafting.

There is one great advantage attached to the use of vacuum cleaning outfits which is not the case with other methods of cleaning. When a room is cleaned with this process, the dust and dirt is actually taken up and removed, and, therefore, each successive cleaning reduces the amount of dirt to be removed, and makes it unnecessary to



SEPARATING TANK FOR HOME-MADE VACUUM OUTFIT.

clean the room as often as would be the case where other means would be employed.

There is no doubt that a great many laboratories and shops would find it profitable not only to install a vacuum cleaning outfit, but a gas furnace and sand blast as well where these are not already used, because all of these are labor-saving tools. The chemist in particular should be a leader in the matter of cleanliness, and, therefore, this system should appeal to him with especial emphasis. Many laboratories and shops have already installed this system.

### GRAMM TRUCKS.

#### Two New Features and Some Old Ones—Electric Starter and Transmission.

After a year's trial in actual service the Gramm-Bernstein Company, Lima,

O., state that there is no doubt about the desirability of a starter on motor trucks. It has proved itself to be not merely a fad or a convenience, but an actual money-saver, and is probably the most important cost-reducing feature placed on a truck in years. With the starter the driver has no excuse for leaving his motor running when standing still, and many a gallon of gasoline and oil is wasted in this way.

A distinct feature of the Gramm trucks is the mounting of the starting motor and generator in the transmission. This is claimed to be an improvement, as the starter acts through the clutch; this may be slipped and the motor acquire its full speed before it is called upon to turn the engine, a much less severe strain being placed on it than if it turned the engine direct. No sliding gears are used, and the generator, driven by a silent chain, is always running when the truck is going.

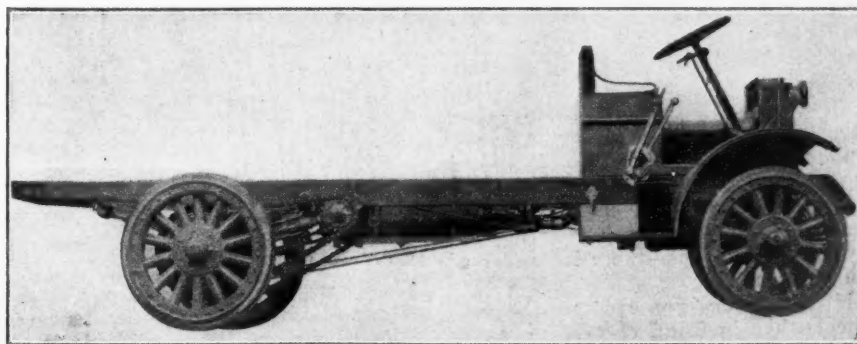
The transmission is unique, in that it has no sliding gears. They are always in mesh and are engaged by dog clutches sliding on the six spline shafts. Radial ball bearings are used throughout.

The general appearance of the Gramm truck differs from most machines on the market. The most striking feature is the low construction. This has been brought about by careful axle and spring design. By the use of long sweeping springs and suitable forms of shackles, several inches in the height have been saved. The low seat is another feature. This is placed behind the dash on either side of the motor. The floor boards are on the same level as the frame.

Gramm trucks are made in one, two, three and a half and five-ton sizes.

### INDUSTRIAL NEWS

**Cast Iron Pipe.**—Chicago. — Several good municipal contracts have been closed. Quotations: 4-inch, \$27; 6 to 12-inch, \$25; 16-inch and up, \$24. Birmingham: Some large orders have been received and more are in sight. Plants are now operating on a larger scale and the feeling is better. Quotations: 4-inch, \$22; 6-inch and up, \$20. New York: Municipal lettings are increasing. A great deal of private inquiry is reported and the feeling in the trade steadily grows better.



GRAMM 5-TON TRUCK CHASSIS.

**Lead.** — Quotations are strong at 4.10c. New York and 3.975c. St. Louis.

**Fire Apparatus.**—It is announced that the Merryweather Company, London, England, will erect a factory in Calgary, Alberta, to manufacture fire apparatus. The factory will cost \$250,000.

**Creosote Works.** — The American Creosote Works, Ltd., New Orleans, La., has been incorporated with a capital stock of \$100,000 by J. M. Van Der Veer, S. W. Labrot and E. L. Powell.

**Coal Tar Products.**—The Louisville office of the American Creosoting Company reports that the plant which it is to establish at Woodward, Ala., is not to be merely for creosoting, but it will be a distilling plant by which by-products from coke ovens will be manufactured into creosote and other coal tar products. It will not be erected at once but will be equipped later in 1914.

**Road Machinery.**—The Champion Mfg. Company, Cedar Rapids, Iowa, has been incorporated and has purchased the plant and equipment of the Eureka Stone & Ore Crusher Company, Cedar Rapids. The new company will manufacture cement mixers, steel farm gates and various other articles and will install a galvanizing plant and several new machines. Lucian T. Wilcox is president and F. H. Douthitt manager.

**Crushed Trap Rock.**—A strong company has been organized, known as the New Britain Trap Rock Company, of Hartford, for the purpose of taking over the business of the Connecticut Construction Company, which is in the hands of a receiver. The property has been purchased by Harold W. Stevens, president of the Hartford National Bank, with Judge Joseph P. Tuttle of the Superior Court, Richard J. Goodman and Don O'Connor as associates.

**New Crushing Plant.**—Maddigan & Co. during the past month have opened two stone quarries on properties purchased by them along the line of the Pennsylvania Railroad near Bolivar, Pa. A crushing plant will be installed in the spring and stone for road-building purposes will be put out in large quantities.

**Care of Inner Tubes of Pneumatic Tires.**—Construction of inner tubes and the things which contribute to their wearing out, are not always understood by the consumer and as a result, many times he does not get the best tube service. What contributes to shortening the life of a tube has been given a great deal of attention by the service department of the Firestone Tire and Rubber Company and the following suggestions are offered:

Spare tubes should not be carried in cardboard boxes as furnished from the dealer's shelves—there is danger of the tubes chafing.

If larger tires are used on the rear wheels than in front, carry extra tubes of each size. Inner tubes are made

to size and if a tube too large for the case is used, pinching and wrinkling will result. A 4½-in. tube therefore, should not be used in 4-in. case or vice versa. If a tube is used in a case larger than that for which it is intended, abnormal stretching and heating of the tube results, the rubber becoming dead and losing its toughness. If it were practical to use a tube without regard to size, manufacturers could effect a big saving in equipment by not varying the tubes.

Given least attention, yet a matter that is most important when the efficiency of the tube is considered, is lubrication. Practically all manufacturers treat the inside of cases with a solution to prevent the inner tubes from sticking to the adhesive "friction" of the fabric. An additional good lubricant should be used however.

Some users neglect altogether to use a lubricant, or employ it too sparingly. Others use it to excess. If soapstone is the lubricant and too much is used, it collects in one place, crystalizes, and heats to such a degree as to burn the tube, making it thin, brittle and lifeless—this can be recognized by the honey combed appearance.

Powdered graphite, though rather unpleasant to handle, is the most durable and efficient lubricant.

Repairs are another snag that owners often run afoul of. It is perfectly practical for one to make his own repairs, but great care must be exercised. See that none but the part to be repaired is put on the vulcanizer. Many times repairs made at home are not serviceable—patches are put on carelessly and allow air to escape because tube and patch are not properly prepared—danger of overcuring is not guarded against or perhaps the repaired parts are not properly lubricated when the tube is replaced. That a tube with a very large blowout may be repaired by inserting a new section is not known by many.

Until 1912 valves were equipped with spreaders for the kind of cases in which they were to be used—straight side, quick detachable clincher and regular clincher. Last year, however, a universal spreader suitable for any case was adopted by this company. When buying a tube other than Firestone inquire whether it is fitted with a universal spreader, if it is not, see that it has one meant for the casing in which it is to be used.

#### PERSONALS.

(Continued from page 150.)

Lockport, N. Y.—Corporation Counsel—M. A. Federspiel; City Clerk—Schuyler Beattie; City Engineer—Julius F. Frehsee; Asst. City Engineer—Daniel W. Burtis; Supt. of Streets—Stanley J. Patten; Sealer of Weights and Measures—Walter W. Newell; Inspector of Lamps and Gas—James H. Fitzgerald; Police Commissioner—Chas. H. Nicholls; Water Commissioner—Louis G. Merritt; succeeds Wm. Richmond, term expired; Water Commissioner—Herbert W. Dale; in

place of Oscar Loosen, resigned; Health Commissioner—Dr. F. A. Kittinger; reappointed.

Farmingdale, N. J.—Mayor Murphy has appointed following committees: Finance—Jacob Lutz, William B. Goodenough, Henry Matz; Streets—Levi W. Farry, Jacob Lutz, James L. Hall; Lighting—Henry Matz, Levi W. Farry, Clarence Shafto; Sidewalks—William B. Goodenough, Clarence Shafto, James L. Hall. The members of the board of health are Harry Hulsart, Harry C. Goodenough, Ira L. Bound, Elwood Applegate and John O. Button.

Pueblo, Col.—Committee on Public Safety—J. Knox Burton; Highways—John T. West; Parks, Lighting and Water—Thomas A. Duke; Public Grounds and Buildings—John T. West; Health, Inspection and Sanitation—Thomas A. Duke; Finance—J. Knox Burton.

Perth Amboy, N. J.—Council committees: Fire—Jorgensen, Kelly, Hilker; Police—Kutcher, Kelly, Clark; Public Grounds and Buildings—Kelly, Clark, Kutcher; Lamps and Lights—Kelly, Clark, Jorgensen; Streets and Sewers—Clark, Kutcher, Kelly; Water—Wilson, Kelly Jorgensen.

Gloucester, Mass.—City clerk, John J. Somers, re-elected for 41st consecutive year; chief of fire department, Charles W. Crowe, re-elected for 18th consecutive year.

Newburgh, N. Y.—City engineer, William J. Blake, Jr.; superintendent of streets, Theodore I. Brooker.

Indianapolis, Ind.—First assistant city engineer, D. C. Hayne; second assistant city engineer, Charles A. Brown; third assistant city engineer, J. Harry Deane; superintendent of streets, Dennis J. Bush; superintendent of street cleaning, James Rochford.

North Adams, Mass.—President of city council, Ezra D. Whebaker; city clerk, Charles S. Brooker.

Waltham, Mass.—President of council, Henry C. Eaton; city clerk, L. N. Hall.

Port Chester, N. Y.—Chief of police, John Strothkamp.

Waterbury, Conn.—Board of public works, Wm. C. Moore, P. H. Robinson, Peter Hock, Theo. F. Nuhn and T. B. Walker; board of public safety, A. J. Wolff, J. C. Downey, John O'Brien, F. P. Welton and James Crompton.

Corry, Pa.—City clerk, George Ream. Newark, N. J.—Common Council Committees have been announced by President O'Brien as follows:

Finance—Reilly, Lee, Phillips, Walsh, Bianchi, Littlefield and Taylor.

Police—Schuck, Lee and Bleick.

Public Markets—Fitzsimmons, Rogers, Semel, Hahn, Curran, Gifford and Lantz.

Public Buildings—Hanlon, Scheininger, McGovern, Rogers, Curran, Haas and Littlefield.

Public Health—Bianchi, Dougherty, Walsh, McCrudden and Haas.

Municipal Lighting—Bianchi, Phillips, Fagan, Faiss, Schmelz, Semel and Bleick.



# ADVANCE CONTRACT NEWS

## ADVANCED INFORMATION BIDS ASKED FOR

## CONTRACTS AWARDED ITEMIZED PRICES

To be of value this matter must be printed in the number immediately following its receipt, which makes it impossible for us to verify it all. Our sources of information are believed to be reliable, but we cannot guarantee the correctness of all items. Parties in charge of proposed work are requested to send us information concerning it as early as possible; also correction of any errors discovered.

### BIDS ASKED FOR

STATE	CITY	REC'D UNTIL	NATURE OF WORK	ADDRESS INQUIRIES TO
<b>STREETS AND ROADS</b>				
Ind.	Terre Haute	11 a.m., Jan.	31.. Road construction; estimated cost, \$58,000.....	N. G. Wallace, Aud.
Mich.	Escanaba	Jan. 31..	Grading 6½ miles, macadamizing 6.84 miles.....	R. P. Mason, Co. Engr.
Tex.	Houston	2 p.m., Jan. 31..	Paving with gravel.....	E. B. Bonney, City Sec.
Ariz.	Phoenix	10 a.m., Jan. 31..	Grading and paving various streets.....	J. Miller, Jr., Pres.
Pa.	Charleroi	Feb. 1..	2,200 feet of brick paving, to cost \$12,000.....	I. L. Nicheon, Boro. Clk.
Ill.	Farmer City	Feb. 1..	Brick and concrete paving, 18,000 sq. yds.....	W. L. Lemon, Engr., Clinton.
O.	Hancock	Feb. 1..	Improving with water-bound macadam; cost \$136,000.....	A. R. Taylor, Engr., Findlay.
Wis.	Fond Du Lac	Feb. 1..	Cement paving, 3 miles.....	J. W. Forrester, Comr. Sts.
O.	Salina	Feb. 1..	Macadam, 4 miles.....	R. D. Smalley, Co. Engr.
La.	New Orleans	Noon, Feb. 2..	Highway construction, 4½ miles.....	W. E. Atkinson, St. Hwy. Eng.
Ind.	Kentland	Feb. 2..	Constructing macadam road.....	S. R. Sizelove, Aud.
Ind.	Williamsport	Feb. 2..	Gravel roads.....	J. W. Smith, Aud.
Ind.	Vevay	Feb. 2..	Road construction.....	J. W. Smith, Aud.
Ind.	Franklin	Feb. 2..	Constructing road with gravel.....	H. L. Knox, Aud.
Ind.	Laporte	Feb. 2..	Brick paving; cost, \$300.....	L. Drew, Engr.
Fla.	Jacksonville	Feb. 2..	Laying asphaltic concrete pavement, 16,762 sq. yds.; vit. block pavement, 33,844 sq. yds.....	Sec. Bd. Bond Trustees.
S. D.	Britton	3 p.m., Feb. 2..	Constructing highway.....	H. M. Deer, St. Engr.
Kan.	Winfield	5 p.m., Feb. 2..	Brick paving, 32,000 sq. yds.....	W. C. Hale, City Clk.
La.	New Iberia	Feb. 2..	Public highway, 4½ miles.....	F. M. Kerrin, Pres. Bd.
N. J.	Union	Feb. 2..	Furnishing, delivering and spreading crushed trap rock.....	W. W. Friberger, Twp. Clk.
Cal.	Sacramento	Feb. 2..	Constructing various roads.....	St. Hwy. Comsn.
Ind.	Hartford City	2 p.m., Feb. 2..	Constructing macadam road.....	Bd. Comrs., Blockford Co.
Ind.	Salem	Feb. 2..	Road construction; estimated cost, \$21,923.40.....	Comrs., Wash. Co.
O.	Wauseon	1 p.m., Feb. 2..	Hauling and placing gravel on road.....	W. W. Ackerman, Aud., Fulton Co.
Kan.	Lawrence	Feb. 2..	Brick and concrete pavement.....	F. E. Brooks, City Clerk.
Ind.	Portland	10 a.m., Feb. 2..	Grading, draining, paving road.....	Bd. Comrs., Jay Co.
Ind.	Brownstown	1 p.m., Feb. 2..	Constructing roads.....	A. Leudtke, County Aud.
R. I.	Providence	2.15 p.m., Feb. 2..	Furnishing circular granite curbing and about 300,000 granite paving block.....	J. H. Gainer, Mayor.
O.	Cincinnati	noon, Feb. 2..	Street improvement.....	T. Fostick, Dir. Pub. Ser.
Ind.	Rushville	2 p.m., Feb. 2..	Gravel road construction.....	A. R. Holden, Co. Aud.
Ind.	Marion	2 p.m., Feb. 2..	Constructing stone roads.....	E. H. Kimball, Aud.
Cal.	Covina	Feb. 2..	Street improvement.....	City Clk.
Ind.	Rensselaer	1 p.m., Feb. 3..	Improving stone road.....	Comrs., Jasper Co.
Ind.	Martinsville	noon, Feb. 3..	Constructing gravel road.....	Comrs., Morgan Co.
Ind.	Vincennes	Feb. 3..	Constructing gravel roads; estimated cost, about \$32,000.....	Bd. Comrs., Knox Co.
Ind.	English	1 p.m., Feb. 3..	Grading, draining, paving road.....	Comrs., Crawford Co.
Ind.	Wabash	1.30 p.m., Feb. 3..	Gravel road improvements.....	Comrs., Wabash Co.
Ind.	Knox	Feb. 3..	Road construction.....	C. W. Weninger, Aud.
Ind.	Crawfordsville	Feb. 3..	Constructing five gravel roads.....	B. B. Engle, Aud.
Ind.	Jackson	Feb. 3..	Constructing highway.....	Bd. Comrs., Fountain County.
Ind.	Delphi	noon, Feb. 3..	Grading, paving and draining highways.....	M. G. Haun, Aud. Carroll Co.
Tex.	Ft. Worth	9 a.m., Feb. 3..	Paving 9,000 sq. yds. various materials.....	F. J. Von Zuben, City Engr.
Ill.	Rantoul	Feb. 4..	Brick pavement, 2 1-25 miles.....	Bd. of Local Imp.
la.	Monticello	8 p.m., Feb. 4..	Paving, curb and gutter.....	C. J. Northrop, City Clk.
N. D.	Burleigh	2 p.m., Feb. 4..	Furnishing corrugated culverts.....	T. E. Flaherty, Co. Aud.
Minn.	Duluth	2 p.m., Feb. 5..	Road and bridge work; quantity of road machinery and tools.....	O. Halden, Aud., St. Louis Co.
Minn.	Virginia	2 p.m., Feb. 5..	Improving 1½ miles roads.....	O. Halden, Aud., St. Louis Co.
Ind.	Evansville	Feb. 5..	Constructing four roads.....	C. P. Beard, Aud.
Iowa	West Union	8 p.m., Feb. 5..	28,000 sq. yds. paving, various materials.....	R. P. Camp, City Clerk.
Minn.	Waseca	2 p.m., Feb. 6..	Constructing rural highway; estimated cost, \$26,606.20.....	D. Peterson, Aud.
S. D.	Mitchell	Feb. 6..	Grading and improving number of roads.....	R. A. Zangle, Co. Aud.
Minn.	Nevish	2.30 p.m., Feb. 7..	Grading and filling about 2½ miles of road.....	C. A. Dietel, Twn. Clk.
N. Y.	Buffalo	11 a.m., Feb. 7..	Paving and repaving various streets.....	F. G. Ward, Comr. Pub. Wks.
Iowa	Pocahontas	Feb. 7..	Paving 6 miles road.....	Trus., Lincoln Twp.
Ind.	Harrison	10 a.m., Feb. 7..	Constructing gravel road.....	Comrs., Delaware County.
N. J.	Red Bank	8 p.m., Feb. 8..	Street paving, 1,172 yds.....	A. H. Harris, Boro. Clk.
Mo.	Joplin	Feb. 8..	Seven blocks of asphaltic concrete pavement.....	V. C. Yantis, City Clk.
N. J.	Alpha	2 p.m., Feb. 9..	Constructing concrete curb and gutter.....	T. Pfeiffer, Ch. Str. Com.
O.	Shaker Heights	Feb. 9..	Paving roads.....	C. A. Palmer, Vil. Clk.
Iowa	Clinton	Feb. 10..	Road improvement, various materials.....	T. G. Thorne, City Engr.
la.	Waukon	Feb. 10..	21,000 sq. yds. vit. brick pavement.....	J. T. Cowan, City Clk.
Ind.	South Bend	10 a.m., Feb. 10..	Grade curb and walk on one street.....	Dept. Pub. Wks.
La.	De Quincey	Feb. 10..	Constructing 82,000 sq. ft. concrete sidewalk, and 18,000 cu. ft. of curb.....	City Clk.
Pa.	Uniontown	noon, Feb. 11..	Constructing brick road.....	T. H. Hudson, Co. Solicitor.
Tenn.	Madison	10 a.m., Feb. 12..	Improving and repairing public roads.....	E. G. Buck, Co. Eng.
la.	Sioux City	Feb. 14..	Five miles concrete paving at estimated cost \$100,000.....	F. J. Wells, City Clk.
Ill.	Taylorville	Feb. 15..	Nine miles brick pavement on concrete base, cost \$180,000.....	J. W. Dappert, Engr.
S. D.	Sioux Falls	9 a.m., Feb. 16..	Paving.....	W. C. Leyse, City Aud.
Ind.	Kentland	1 p.m., Feb. 16..	Constructing macadam road; estimated cost, \$15,599.40.....	Comrs., Benton & Newton Co.
Ind.	Fowler	1 p.m., Feb. 16..	Macadam road.....	S. R. Sizelove, Co. Aud.
Minn.	Bemidji	2 p.m., Feb. 17..	Constructing rural highway, 45.11 miles.....	J. L. George, Co. Aud.
Minn.	Crookston	10 a.m., Feb. 18..	Grading, turnpiking and clearing portion state road.....	H. J. Welte, Aud. of Polk Co.
Minn.	Winona	Feb. 18..	Completing three concrete state highways.....	C. W. Anding, Co. Aud.
Ind.	Plymouth	Feb. 18..	Constructing roads.....	G. F. McCoy, Aud.
Pa.	Paterson Hgts.	Feb. 19..	4,000 sq. yds. of paving.....	Borough Council.
Ind.	Marion	10 a.m., Feb. 19..	Furnishing 1 steam road roller.....	W. T. Patten, Aud.
Tex.	Mineral Wells	Mar. 1..	Macadam road; cost, \$55,000.....	G. S. Steward, Mayor.
N. J.	Plainfield	Mar. 2..	Furnishing crushed stone, crosswalks and curbing.....	City Clk.
Mont.	Plentywood	2 p.m., Mar. 4..	Furnishing 12 road slips, 5 road piles, 1 grader, 1 road drag, 4 4-wheeled scrapers, etc.....	B. H. Johnson, Clk. & Rec.

## BIDS ASKED FOR

STATE	CITY	REC'D UNTIL	NATURE OF WORK	ADDRESS INQUIRIES TO
Mont., Billings.....	Mar. 17..	18,500 yds. of paving.....	L. E. Torrence, City Clk.	
Minn., Fergus Falls.....	2 p.m., Mar. 24..	Certain road tools and machinery.....	W. Lincoln, Aud. of Otter Tail Co.	
Fla., St. Augustine.....	Noon, Feb. 24..	Paving 64 miles; various materials.....	Clerk of Board.	
O., Ottawa.....	noon, Feb. 29..	Constructing various stone roads.....	J. E. Roose, Co. Aud.	
SEWERAGE				
Ont., Simcoe.....	Feb.	1.. Lateral sewers and house connections; cost, \$40,000.....	W. C. McCall, City Clk.	
Iowa, Alden.....	Feb.	2.. Sewers, 11,635 ft; manholes, etc.....	H. E. Button, City Clk	
Mich., Kalamazoo.....	5 p.m., Feb.	2.. Sewer pipe and cement for 1914.....	C. L. Miller, City Clk.	
Ga., Atlanta.....	2 p.m., Feb.	2.. Constructing sanitary sewer.....	W. E. Watkins, Mayor.	
Ia., Storm Lake.....	4 p.m., Feb.	3.. About 4,700 ft. 12, 14 and 16-in. pipe; 5 catchbasins.....	W. W. Bennett, Co. Aud.	
Ill., Peotone.....	Feb.	3.. Constructing vit. tile pipe sewers, concrete settling basins, catch basins, etc.....	Bd. Local Imp.	
Minn., Crookston.....	8 p.m., Feb.	3.. Removing egg-shaped sewer and replacing with standard flange, cast-iron pipe, diameter, 42 ins.; distance, 100 ft.....	L. Ellington, City Clk.	
Ill., Kankakee.....	2 p.m., Feb.	3.. Open ditch work.....	Comr. of Louis Drain. Dist. No. 1.	
N. D., Lakota.....	2 p.m., Feb.	2.. County drain.....	J. Franzen, Sec.	
Neb., Scottsbluff.....	Feb.	3.. 8 to 10-in. pipe sewers and gravity sewage disposal plant, estimated cost, \$22,000.....	G. L. Shumway, City Clerk	
N. Y., Brooklyn.....	Feb.	4.. Sewer construction (3 jobs).....	L. H. Pounds, Pres.	
N. J., Bogota.....	8 p.m., Feb.	9.. Constructing 4.4 vit. sewers, with two disposal plants, etc.....	H. P. Ross, Boro. Clerk.	
Minn., Kelliher.....	9 p.m., Feb.	9.. Laying sewer main, disposal plant, etc.....	City Clerk.	
Ind., South Bend.....	10 a.m., Feb.	10.. Pipe sewer on three streets.....	Dept. Pub. Wks.	
Ia., Clinton.....	Feb.	10.. Sewers.....	City Clerk.	
Ia., Lamoni.....	Feb.	10.. Constructing sewer with Imhoff tank, cost \$20,000.....	J. F. Jones, Twn. Clk.	
N. Y., Fairport.....	Feb.	11.. Constructing intercepting sewer and disposal plant.....	R. L. Williams, Vil. Clk.	
Ia., Sioux City.....	Feb.	14.. Sanitary sewer in various streets.....	P. J. Wells, City Clk.	
Wis., Fond du Lac.....	Feb.	15.. vit. pipe sewer, 1 1/2 miles, 8 to 16-in.....	J. F. Honensee, City Clk.	
Kan., Council Grove.....	Feb.	15.. Constructing 8-inch vit. pipe sanitary sewer; cost, about \$16,000.....	M. W. Perry, City Clk.	
Minn., Ortonville.....	Feb.	16.. Constructing sewer system.....	E. Scheibe, City Clk.	
N. J., Newark.....	2 p.m., Feb.	17.. Constructing outfall pressure tunnel.....	Passaic Valley Sew. Comm.	
Mont., Butte.....	3 p.m., Mar.	1.. Sanitary sewer.....	W. A. Willis, City Clk.	
Ark., Blytheville.....	Mar.	1.. Constructing sanitary sewer; cost, \$60,000.....	H. C. Houston, Engr., Memphis, Tenn.	
WATER SUPPLY				
Ark., Eureka Springs.....	Feb.	2.. Constructing dam, settling basins and two filter units.....	A. C. Moore, Joplin, Mo.	
Mont., Columbus.....	Feb.	2.. Constructing water works.....	E. A. Westover, Town Clk.	
Ky., Carlisle.....	2 p.m., Feb.	2.. Constructing water works.....	J. H. Frey, Mayor.	
Tenn., Nashville.....	10 a.m., Feb.	3.. Fire hydrant, c-i. pipe, valve boxes, gate valves.....	Sec. Bd. of Comrs.	
Can., The Pas, N. W. T.....	Feb.	3.. Constructing water mains.....	H. H. Elliott, Sec. Treas.	
O., Steubenville.....	noon, Feb.	3.. Constructing water supply system.....	Comrs., Jefferson Co.	
N. Y., New York.....	Feb.	3.. Delivering and installing gate and other valves, etc.....	C. Strauss, Pr. Bd. Wtr. Sup.	
Ill., Piper City.....	4 p.m., Feb.	4.. Water mains, fire hydrants, valves, etc.....	Bd. of Local Imp.	
Neb., Meade.....	Feb.	5.. Installing water works system.....	City Clerk.	
Mass., Boston.....	Feb.	5.. 250,000 lbs. iron castings; 200,000 lbs. pipe casting; 500,000 lbs. main pipe castings; 500,000 lbs. water service fittings, etc.....	Supply Dept., D. F. Dougherty.	
S. D., Davis City.....	Feb.	6.. Constructing water works, cost about \$7,500.....	E. Joyce, Town Clk.	
Ky., Taylorsville.....	Feb.	7.. Water works system.....	J. H. Reid, Mayor.	
O., Shaker Heights.....	Feb.	9.. Constructing water mains.....	C. A. Palmer, Vil. Clk.	
Pa., Meadville.....	noon, Feb.	11.. 900 3/4-in., 50 3/4-in., and 50 1-in. water meters; 19 water meters, various sizes.....	Water and Light Dept.	
LIGHTING AND POWER				
Ill., Quincy.....	Feb.	2.. Lighting streets, from 1 to 3 years.....	City Clk.	
Minn., Baudette.....	8 p.m., Feb.	2.. Constructing water and light plant.....	F. W. Schmidt, Act. Clk.	
N. D., Minnewaukon.....	2 p.m., Feb.	3.. Installing electric light plant in court house.....	W. E. Paulson, Co. Aud.	
N. Y., Albany.....	Feb.	4.. Electric wiring, conduits, fire alarm system, etc.....	Bd. Co. Supvrs.	
Okla., Wewoka.....	Feb.	4.. Leasing municipal water and electric light systems.....	Town Clerk.	
N. J., Elizabeth.....	Feb.	5.. Lighting streets with electricity, optional period.....	Com. on Street Lighting.	
FIRE EQUIPMENT				
Ind., Muncie.....	Jan. 31..	1,000 ft. of hose.....	Chief J. A. Casey.	
N. Y., New York.....	Feb.	2.. Fire alarm system for hospital.....	State Hosp. Comm, Albany.	
Fla., Jacksonville.....	8 p.m., Feb.	4.. Triple combination automobile pump.....	Frank Richardson, Chmn.	
Iowa, Clinton.....	8 p.m., Feb.	10.. Constructing fire station.....	City Clerk.	
N. Y., New York.....	3 p.m., Feb.	13.. Warehouse, non-interference fire alarm system.....	Supv. Arch., Treas. Dept., Wash., D. C.	
BRIDGES				
Tex., Houston.....	Feb.	1.. Reinforced concrete bridge; cost, \$140,000.....	Ben. Campbell, Mayor.	
Ind., Valparaiso.....	Feb.	2.. Constructing five bridges.....	C. A. Blanchly, Co. Aud.	
Minn., Hastings.....	Feb.	3.. Erecting state bridge.....	Co. Aud.	
Minn., Aitkin.....	2 p.m., Feb.	4.. Constructing five county bridges.....	J. B. Lemire, Co. Aud.	
Ind., Marion.....	2 p.m., Feb.	5.. Constructing two bridges.....	Co. Comrs.	
Mich., Grand Rapids.....	10 a.m., Feb.	10.. Bridge construction.....	M. A. Spang	
Tex., Cameron.....	Feb.	11.. 500-foot highway bridge.....	J. Watson, Co. Judge.	
Ind., Terre Haute.....	Feb.	15.. Constructing 2 bridges, 20 and 34-foot spans.....	N. G. Wallace, Co. Aud.	
Ia., Des Moines.....	Feb.	16.. Constructing bridges.....	H. P. Frase, Co. Aud.	
Ga., Americus.....	9 a.m., Feb.	16.. Two reinforced concrete bridges.....	Sumter Co. Comrs.	
Tenn., Chattanooga.....	Feb.	18.. Bridge, \$500,000.....	T. F. King, Ch. Bridge Comm.	
S. D., Clear Creek.....	2 p.m., Mar.	4.. Constructing steel and concrete bridge.....	A. L. Larson, Co. Aud.	
Ore., Gold Beach.....	5 p.m., Apr.	9.. Reinforced concrete bridge to cost \$35,000.....	J. M. Caughell, Co. Sur.	
MISCELLANEOUS				
N. Y., Buffalo.....	11 a.m., Jan. 31..	An auxiliary 30-ton electric travelling crane.....	F. G. Ward, Comr.	
O., Cincinnati.....	noon, Jan. 31..	Furnishing four motor cycles.....	W. Hodgkinson, Sec.	
Neb., Scottsbluff.....	Feb.	1.. Pipe and fire hydrants; cost, \$15,000.....	Engrs.	
Ill., Chicago.....	11 a.m., Feb.	2.. Furnishing and delivering pine lumber.....	L. E. McGann, Comr. Pub. Wks.	
Ill., Chicago.....	11 a.m., Feb.	2.. Furnishing about 12,000 bbls. Portland cement.....	L. E. McGann, Comr. Pub. Wks.	
Mo., Richmond.....	Feb.	2.. Constructing \$100,000 court house.....	J. J. Pardue, Co. Treas.	
Mich., St. Joseph.....	7 p.m., Feb.	3.. Fire department building.....	L. Fillehr, City Clk.	
Fla., Key West.....	7.30 p.m., Feb.	3.. 30-ton incinerating plant.....	H. K. Cold, City Clk.	
Can., Ottawa.....	4 p.m., Feb.	3.. About 85 miles welded steel pipe.....	City Clerk.	
D. C., Washington.....	10.30 a.m., Feb.	3.. Motor driven air compressor, exciter sets, auto transformers, lumber, etc.....	Gen. Pur. Off., Isthmian Canal Com.	
Minn., St. Paul.....	Feb.	3.. Furnishing one squad wagon and 4 runabouts.....	W. O'Gorman, Sec.	
Pa., Reading.....	11 a.m., Feb.	4.. Garbage disposal, optional period.....	City Clerk.	
O., Cincinnati.....	Feb.	5.. Furnishing 1,700 bbls. Portland cement, 600 bbls. paving pitch, 75,000 gals. bituminous binder, sand, etc.....	E. Von Bargen, City Pur. Agt	



## BIDS ASKED FOR

STATE	CITY	REC'D UNTIL	NATURE OF WORK	ADDRESS INQUIRIES TO
D. C., Washington.	10.30 a.m., Feb.	7..	Electric welding outfit, steel pipe, valve, flush pipes, etc.	Maj. F. C. Boggs, Gen. Pur. Off., Isthmian Canal Comm.
Minn., Anoka	4 p.m., Feb.	9..	Constructing armory building	Bd. Armory Supv., St. Paul.
Pa., Philadelphia	Noon, Feb.	9..	Furnishing 3-ton electric locomotive crane and electric hoist	G. W. Norris, Dir., Dept. Docks
Ill., Bloomington	noon, Feb.	10..	Furnishing and erecting 500 HP. water tube boiler	Supv. Arch., Wash., D. C.
Mo., Booneville	3 p.m., Feb.	11..	Post office	J. J. Quinn, City Controller.
D. C., Washington	Feb.	11..	Installing automatic weighing and recording scale	H. S. Hamlin, Asst. Sec., Treas. Dept.
D. C., Washington	11 a.m., Feb.	14..	Two motor driven fire pumps; cost, \$14,000	R. H. Stanford, Bur. Yds. & Docks, Navy Dept.
Del., Fort du Pont	11 a.m., Feb.	15..	Air compressor in pumping station	Quartermaster.
N. Y., Lockport	Feb.	16..	Constructing incinerator plant and buildings	S. Beattie, City Clk.
N. Y., New York	Feb.	16..	Reconstructing Steinway Tunnel	ub. Service Comm.
Cal., Berkeley	Feb.	18..	Constructing post office	Supv. Arch., Treas. Dept., Washington, D. C.
W. Va., Wheeling	11 a.m., Feb.	19..	Furnishing 2,500 bbls. Portland cement	Maj. J. P. Jervey, U. S. A.
La., New Orleans	Feb.	26..	Brick building for pumping station	Sewage & Water Board.
Tex., Kingsville	noon, Mar.	1..	Erecting fireproof court house and hospital	Comrs. Court of Kleburg Co.
N. C., Raleigh	Mar.	2..	Erecting court house; cost, \$224,000	City Clerk.
Mont., Helena	8 p.m., Mar.	2..	Two 600-gallon tank street sprinklers	E. J. McConnell, City Clk.

## STREETS AND ROADS

**Greenville, Ala.**—Commissioners' Court of Butler County is very much interested in good road building. At present much work is being done by county. A good road is being planned to run east from Greenville to connect with good road of Crenshaw County to Honora-ville. This road will pass through some of best farming lands of county. Another road is being planned to run out from Georgiana.

**Douglas, Ariz.**—At least 3½ miles of state highway between Douglas and Bisbee and to east of Forrest station will be permanently improved, while rest of road between Douglas and Forrest station will be repaired, according to statement of Lamar Cobb, State Engineer.

**Arbuckle, Cal.**—A large delegation of Arbuckle State Highway boosters attended mass meeting at Williams which was held for purpose of discussing plan of financing highway bonds to build road through this county.

**Lodi, Cal.**—Proposed highway from Conley's Corners to Stockton is being discussed.

**Oakland, Cal.**—City Engineer has been instructed to prepare proceedings for improving Bromley Ave., from 62d to 64th Ave., and 55th Ave., from East 14th to Dawling St. Property owners in 59th St. were instructed to lay sidewalks between Stanford Ave. and Idaho St. within 20 days.

**Pasadena, Cal.**—Ordinances have been adopted for improvement of various streets. Herman Dyer is City Clerk.

**Roseville, Cal.**—At meeting of City Trustees bids and contracts for paving were received and opened. Three bids were submitted as follows: Joseph Lawrence, \$16,926.55; McGillivray Construction Co., \$19,445, and Burns & Derowsee, \$16,930.21. Bids were held up on account of State Highway survey on Rocklin Road. In addition to contracts for which above bids were submitted there will be two blocks extra of paving work that will necessitate adding from \$1,600 to \$1,900 to each bid.

**San Francisco, Cal.**—Plan is being considered for construction of 8-mile 80-ft. boulevard around Lake Merced. The Lake Merced Blvd. will form part of Twin Peaks scenic boulevard system and extension of Market St. and will serve as drainage safeguard to waters of lake.

**Willows, Cal.**—D. W. Ross, chairman of Sacramento Valley West Side Counties' State Highway Committee, has arranged with Supervisors of Colusa County for public mass meeting to take up question of buying bonds with county funds to enable construction of West Side stem of the State road.

**Bridgeport, Conn.**—Petition has been received asking for grading and macadamizing of Livingston Place, from East Main St. to Noble Ave.

**Bridgeport, Conn.**—Following bond issue has been prepared by Alderman Miller: Two hundred thousand dollars for pavements, other than waterbound macadam; to be dated July 1, 1914, bearing interest at rate of 5 per cent. a year, to be retired at rate of \$40,000 a year.

**Greenwich, Conn.**—Town Highway Committee has made public its contemplated road improvements for coming year. These are to be made on all roads except those where the work of laying sewers has been contemplated. Following roads are to be built: A cement road, 18 ft. wide, on Lake Ave., from borough line to Round Hill Road; 16-ft. road from

Round Hill Road to the residence of Geo. F. Dominick, Jr., 6,700 ft. in length; a cement road 18 ft. in width, from Post Road to Glenville Road on Brookside Drive, approximately 3,200 ft.; a cement road, 16 ft. in width, entire length of Prospect St., about 1,570 ft.; a cement road, on Dublin and Hill roads, from North St. to East Stanwich Road, 18 ft. from North St. to entrance of Golf Club, 16 ft. from Golf Club to East Stanwich Road, 63,336 ft.; a cement road, from H. Durant Cheever's place on North St. to Scofield's corner, 5,750 ft.; a cement roadway, 18 ft. in width, from present road to new piece of road near residence of James R. Mead, 2,400 ft. Committee was appointed by town to take charge of expenditure of \$600,000 to be raised by bond issues for building of permanent highways in Greenwich.

**Colorado Springs, Colo.**—General opinion seems to favor taxation scheme for raising \$500,000 to carry on work of road building.

**Colorado Springs, Colo.**—Plans for further development of Pikes Peak route as a link in ocean-to-ocean highways and for federation of various state units to bring together in one great transcontinental highway, have been considered and adopted at meeting of Board of Directors of Lincoln Highway Association of Colorado.

**Jacksonville, Fla.**—Paving of Boulevard has been authorized from Second and Boulevard Sts., to Third and Pearl Sts., Tarvia being named on four-inch concrete base, with cement curb and gutter.

**St. Augustine, Fla.**—Proposition of calling bonding election for paving of county roads is being considered.

**Rising Fawn, Ga.**—It seems probable that election will be called here shortly for purpose of voting on bonds for road construction purposes.

**Alton, Ill.**—Number of improvement ordinances will be brought up at next Council meeting. These will include paving of Seventh St., from Alton to Langdon; the paving of 12th from Warren to Liberty; paving of Liberty from Union to Clement; paving of alley near Beacon St.; paving of Mechanic St., from Sixth to Eighth St. Besides these improvements, Alderman Johnson of the First Ward will present improvement ordinance calling for paving of road along river from Short St. to city limits.

**Bedford, Ind.**—County Treasurer Short has sold \$3,000 worth of gravel road bonds at premium of \$21 with accrued interest.

**Indianapolis, Ind.**—Plans for cement sidewalks and pavement in 36th St., from Illinois St. to Capitol Ave., have been ordered by Board of Public Works.

**Indianapolis, Ind.**—A resolution for purchase of land and for boulevard construction work along Fall Creek from 30th to 38th Sts. has been confirmed by Board of Park Commissioners when no property owners appeared to protest against such action. Cost of land acquisition and construction work will be approximately \$135,000.

**Liberty, Ind.**—Citizens of Liberty Township, in this county, are preparing petition to be presented to County Commissioners asking for election to authorize building of 6 miles of macadam road.

**Vincennes, Ind.**—Plans are being considered for considerable paving this year.

**Carroll, Ia.**—Council has decided to pave at least 15 blocks more in business district.

**Council Bluffs, Ia.**—City Council has recommended paving of South Ave. with concrete 20 ft. wide and 7 or 8 ins. thick.

**Lawrence, Kan.**—Ordinance has been passed ordering grading, paving and curbing of Copley St., known and designated as Mississippi St., from north line of Rogers Ave., known and designated as 18th St., to south line of Sherman Ave., known and designated as 17th St.

**Ottawa, Kan.**—Petition has been presented to County Board asking for county road.

**Pittsburg, Kan.**—Ordinance has been passed to provide for curbing and guttering, grading and paving of Rose Ave. from east line of Broadway to west line of Locust St., known as Curbing District No. 61-C and Paving District No. 77-P. Leonard Boyd is City Clk.

**Pittsburg, Kan.**—Resolution has been adopted for grading and paving of Joplin Ave. with either vitrified brick or 4-in. concrete base, or a double course of brick Class "A," "B" or "C" construction.

**Howling Green, Ky.**—Sufficient names have been secured throughout county to file petition to secure calling of special election in which people of county will have opportunity to vote on proposition of issuing 4 and 4½ per cent. bonds to amount of \$300,000, for purpose of improving roads of county. Petition will be filed within few days, and election will probably be called in March.

**De Quincy, La.**—Bids will be received until Feb. 10 for construction of about 82,000 sq. ft. concrete sidewalk and about 18,000 lin. ft. curb. Plans and specifications on request from Mayor or T. H. Mandell, C. E., Lake Charles, La.

**Augusta, Me.**—Members of the State Highway Commission at session voted that policy of Commission matter of road building for this year would be construction of 7-mile section in each county of state so far as is practicable. Work on these roads will be in section of interlocking highways, system which was recently adopted by Highway Commission. Location of work will be substantially as follows by counties: Androscoggin County, between Greene and Monmouth; Aroostook County, Houlton, south; Cumberland County, post road between Portland and Bath; Franklin County, Fairbanks towards Phillips beginning at the bridge across the Sardy River; Hancock County, Ellsworth towards Trenton; Kennebec County between Monmouth and Winthrop; Knox County, Warren towards Waldoboro; Lincoln County, Waldoboro towards Warren; Oxford County, New Hampshire line, from Fryeburg towards Bridgeton; Penobscot County, Etna towards Bangor; Piscataquis County, Dover towards Dexter; Sagadahoc County, Woolwich towards Wiscasset; Somerset County, Norridgewock towards Madison; Waldo County, Northport; Washington County, East Machias towards Whiting; York County, complete the broken sections to Biddeford.

**Portland, Me.**—Complete plans of the Maine State Highway Commission for constructing 7 miles of road in 16 counties the coming summer have been announced. The exact places where work is to be done have been decided upon by commission and construction will be started just as soon as spring opens.

**Portland, Me.**—A new highway, 224 miles long, connecting Augusta and city of Quebec, is assured according to announcement of State Highway Commission. Quebec government has appropriated \$300,000 to build road from Quebec

to Maine boundary, distance of 93 miles, and remaining 131 miles will be constructed by this state.

**Annapolis, Md.**—The \$6,000,000 road loan bill now before Ways and Means Committee of House embodies plan approved by State Roads Commission for continuing work for next two years. It is intimated by Commission that to complete system of 1,285 miles as originally laid out, a total of \$9,000,000 will be needed, but \$6,000,000 is all that can be judiciously spent in next two years.

**Baltimore, Md.**—Although Paving Commission has decided to reject two bids submitted for repaving of Howard St. when contract was put on block some weeks ago, it has been announced that plan to improve that thoroughfare this year will not be abandoned. Bids of two concerns are considered by Paving Commission to be excessive. Bid of the Baltimore Asphalt Block and Tile Co. for work was \$1.98 a sq. yd. for sheet asphalt, and that of Warner-Quinlan Co. \$2.

**Baltimore, Md.**—Streets in Annex to be paved this year under 1914 allotment of \$500,000 from Annex loan will be determined after tour of that section of city by members of Board of Estimates, the Appeal Tax Court and Commission for Opening Streets.

**Baltimore, Md.**—At meeting of Board of Awards contract involving paving of important South Baltimore streets will be put on block. Streets, which will be paved with vitrified brick and Belgian block, will be improved under direction of the Paving Commission. Streets included in contract are: Charles St., from Port Ave. to Hill St.; Fort Ave., from Charles to Light; Race St., from Cross to Hanover; Hamburg St., from Sharp to Light; Patapsco St., from West to Hamburg; and Leadenhall St., from Stockholm to Ostend.

**Perryville, Md.**—State Roads Commission has asked for bids for macadamizing road between Perryville and North East.

**Haverhill, Mass.**—Resurfacing to be done this year by highway department has been discussed by Mayor Moulton and Alderman Wood. Mayor was preparing his budget statement for highway department and he estimated that there would be 190,000 sq. yds. of resurfacing to be done this year. This includes Main St., from Monument Square to the state line; Lincoln Ave. and Groveland St., from Water St. to Groveland bridge; Broadway and North Broadway to the state line; Salem St., Bradford; Lexington Ave., Bradford; Main St., Bradford, and Kenzoa Ave. Alderman Wood also wants appropriations for Primrose St., Hilldale Ave. and Kenzoa St. He said that it would cost very little to give Kenzoa St. a coat of asphalt and gravel and that this would put the street in excellent condition.

**Lowell, Mass.**—The three members of county commission, Messrs. Barlow, Gould and Williams, and Robert F. Marden, representing the highway committee of Lowell board of trade, are discussing matter of building new road from Bridge St. to connect with new Lowell-Lawrence boulevard.

**Lowell, Mass.**—Commissioner Morse is making arrangements to pave Gorham St. from Davis Square to Corbett St. and this will represent biggest paving job for 1914.

**Flint, Mich.**—Several more new pavements have been declared by resolution passed in common council as necessary public improvements and city engineer has been instructed to prepare plans and specifications at once so as to provide for their early construction. Streets to be paved as announced are: Island St. St. John St. to second bridge; South Saginaw St. from 15th St. to Peer Ave.; Richfield Rd. from East St. to Geseret St.; Crapo St. from 2d St. to Richfield Rd.

**St. Paul, Minn.**—The State Highway Commission will hold its first meeting of year at its offices in Shubert building to plan for work to be done under Dunn law.

**Joplin, Mo.**—Resolutions have been adopted for improvement of various streets. V. C. Yantis is City Clk.

**Fort Benton, Mont.**—Citizens will vote on Jan. 30 on \$140,000 bond issue for street paving.

**Asbury Park, N. J.**—Condemnation proceedings to secure extension of Beach Ave., Bradley Beach, through from La Reine to 4th Aves., distance of 3 blocks, will be set in motion.

**East Amwell, N. J.**—Township residents have asked Hunterdon County Freeholders to build macadam road from Larson's Corner to Clover Hill.

**Elizabeth, N. J.**—County road improvements to amount to \$238,000 have

been mapped out at conference of county roads committee of Board of Freeholders, State Commissioner of Highways Colonel Edwin A. Stevens and County Engineer Jacob L. Bauer. The program includes following improvements: Improvement of St. George Ave. at the six roads in Rahway, the roadwork to cost \$6,000, and the new bridge to cost \$9,000, the total improvement to cost \$15,000; improvement of Westfield Ave., from Elizabeth to Roselle, at a cost of \$25,000; improvement of Westfield Ave., from Roselle to Cranford, at a cost of \$35,000; improvement of Morris Ave., from the Farmers Hotel in Springfield to the Rahway Valley Railroad in Summit, at a cost of \$35,000; improvement of Wood Ave., Linden, from St. George Ave. to Edgar Rd., at a cost of \$23,000; general road repair throughout the county and payments for the expenses of widening Mountain Ave., to cost altogether \$55,000. This will make a total cost of \$238,000 for road work in the county. If the State appropriates the sum asked, it will leave \$138,000 for county to provide. All new road surfaces will be some hard-surface finish, either concrete or some bituminous material, and they will be laid on proper foundations and done in most modern and up-to-date manner.

**Long Branch, N. J.**—Freeholder Chas. M. Wyckoff has presented petition from residents in Millstone Township asking for new four-mile gravel road leading from Thompson's Corner to Paradise Corner and Mercer County road at Ely's Corner. Petition was accompanied by resolution from Millstone Township committee agreeing to pay for ten per cent. of cost of road. Engineer was directed to make plans and specifications of Deal Lake Road and approaches on resolution offered by Freeholder Thompson.

**Millville, N. J.**—Appropriation of \$10,000 has been recommended for improved roads.

**Newton, N. J.**—If plans of Board of Freeholders, made with County Engineer Harvey Snook, are carried out, highway from Newton to Ogdensburg, ten miles, and from Ross's Corner to Sussex, six miles, will be improved this year at expense of \$160,000. Macadamizing of these two roads will give improved road circuit that will reach every town of importance in county, and will not require traveler to get off of improved highway in so doing.

**Newark, N. J.**—Comprehensive recommendations for improvement of county roads and bridges and for increasing efficiency of department under his control, have been submitted to Freeholders' Committee on Roads and Assessments by County Engineer Frederic A. Reimer. Mr. Reimer urged improvement of Washington Ave., from the Nutley-Belleville line to Avondale Rd. He also advised repaving of Bloomfield Ave., Verona, from the Montclair line to Pompton Turnpike, with grouted granite, and resurfacing of the latter for its entire length with warrenite. Other roads suggested for improvement are Wyoming Ave., South Orange Township, with concrete, and Roseland Ave., in Caldwell, Lynx Fells and Roseland, with bitulithic concrete.

**Passaic, N. J.**—Ordinance has been passed to widen sidewalk on easterly side of Main Ave., between Lexington Ave. and Washington Place, and sidewalk on Main Ave. adjoining the lands of the Erie Railroad on east between Lexington Ave. and Jefferson St.

**Albany, N. Y.**—Controller Sohmer has completed largest and most successful bond sale in history of state by awarding entire issue of \$51,000,000 canal and highway bonds to syndicate headed by Kuhn, Loeb & Co. and William A. Read & Co., of New York City, at rate of 106.077. The Kuhn-Loeb-Read bid was for all the bonds or none. Theirs was not the highest bid, but it was deemed most advantageous. Bids at higher figure were for only small blocks.

**Albany, N. Y.**—A new State highway between Albany and Buffalo, by way of Cooperstown, Ithaca and Dansville, is proposed in bill introduced in State Senate by Senator Seeley. It carries appropriation of \$100,000 for construction of roads in gaps in local systems necessary to making of continuous highway.

**Binghamton, N. Y.**—Committee has been appointed to consider ways and means to improve or construct highways around sides of hills surrounding Binghamton.

**Brooklyn, N. Y.**—One of the central features of Queens Planning Movement is proposed magnificent Queens Boulevard, which will be, when completed, leading driveway, parkway and avenue for pleasure traffic of City of New York.

**Brooklyn, N. Y.**—Preliminary authorization has been given for recurfing and paving with asphalt 62d, 64th, 65th and 66th Sts., from 21st Ave. to Bay Parkway. In Queens most important final authorization was that for grading Anable Ave., Long Island City, from Van Dam St. to New Calvary Cemetery, at estimated cost of \$31,400. Most important preliminary authorization was that of grading Ditmas Ave., Long Island City, from Astoria Ave. to Frigate St., Long Island City, 14 blocks, estimated cost of which is \$55,000.

**Fulton, N. Y.**—Bonds of city of Fulton to amount of \$50,866.23, issued for purpose of assisting in payment for paving West Broadway and West First St., have been awarded by Common Council at special meeting to Douglas, Fenwick & Co., of New York.

**Geneva, N. Y.**—Highway Department will pave Hamilton St. from center of Pultney St. west to State Road at Beans Hill.

**Newburgh, N. Y.**—Plans for systematic improvement of city streets have been taken up by street committee of City Council. City Engineer Blake has presented map showing those streets of city now paved and material used. It was proposed to go over map and make general plan for whole city.

**Oswego, N. Y.**—A. B. Leach & Co. of New York City were successful bidders on \$60,000 worth of Oswego County highway bonds.

**Peekskill, N. Y.**—Plans for improvement of Crompond St. and Highland Ave. have been taken to Albany by Division Engineer Waite. Streets as now proposed are to be surfaced with vitrified brick, except on Annsville Hill, where it is proposed to use granite blocks. Brick and block will be laid on concrete base and total width of pavement will be 16 ft.

**Syracuse, N. Y.**—It is probable that contract between the Delaware, Lackawanna & Western Railroad Co. and Grade Crossing Commission will be concluded in time for state to make appropriation at present session of Legislature for its share of cost of eliminating grade crossings on company's line in this city.

**Syracuse, N. Y.**—Bids have been received on following contracts: Paving Tully St., from end of present pavement to Ontario St., and Ontario St., from Tully St. to West Fayette St.; Fayette St.; Willis Ave. from West Genesee St. to the Erie canal; resurfacing of Jefferson St., from South Clinton to Montgomery St., and in the same street from East Onondaga to Grape St., and grading of Avery Ave., from West Genesee to Essex St.

**Throopville, N. Y.**—Many improvements are planned for Throopville, including improving streets and sidewalks.

**Watertown, N. Y.**—Contract for that stretch of state highway running between Antwerp and St. Lawrence County line will be included in lettings which will be made early in February according to announcement made at State Highway Department. First letting of contracts will be on January 30, but these will not include any roads in Northern New York. Second letting which will occur about a week or ten days later will have Antwerp County line stretch of six miles included.

**Watertown, N. Y.**—Construction of proposed state highway from end of pavement on Washington St. to end of Adams state road near Watertown Center, contract for which it had been anticipated would be let by State Highway Commission within next few weeks, may not be taken up at all this year, unless city of Watertown finds some way of raising \$15,000 with which to do part of work. It is estimated that total cost for 24-ft. road from end of present pavement on Washington St. to end of the road other side of Watertown Center, would approximate \$68,000. Of this state will furnish \$45,000. City's share would amount to \$15,000 and county's share would be \$8,000.

**Yorkville, N. Y.**—Paving bonds in sum of \$3,800 will be sold.

**Goldsboro, N. C.**—Good Road Commissioners of Goldsboro Township have sold first installment of good roads construction bonds for \$25,000, with which they will inaugurate construction of first section of proposed good roads system for this township.

**Hillsboro, N. C.**—The Treasurer of Road Commission reports Jan. 1, \$187,966 still on hand. It is estimated that bond money will build 70 miles of road or more. Next road to be located is route from Chapel Hill to Hillsboro. This will be done at February meeting. There are three routes from which commission will have to select.



**Charlotte, N. C.**—Bonds in sum of \$75,000 have been sold to Mayer, Deppe & Walter, of Cincinnati, O. They are for special street improvements.

**Piqua, O.**—County Commissioners have awarded \$90,000 of Road and Bridge Emergency bonds to Hoehler, Cummings & Pruden, of Toledo.

**Toledo, O.**—Board of County Commissioners of Lucas County, Ohio, will sell to highest responsible bidder \$90,697.67 of the said county's bonds, at its office in Toledo, on the 6th day of February, 1914, and sealed bids will be received by County Auditor for purchase of said bonds up to 10 o'clock A. M. of said date. Bonds are issued to provide fund for causing of all necessary repairs to be made for proper maintenance of all improved roads in County. C. J. Sanzenbacher is Auditor.

**Youngstown, O.**—Bonds in sum of \$75,000 will be sold Jan. 26 for opening, widening and extending streets and public highways; \$4,500 for various street improvements, also bonds for sidewalk construction.

**Youngstown, O.**—Paving of several streets has been ordered.

**Chickasha, Okla.**—City will give work to its unemployed men on streets. At special meeting of City Council it was voted to expend all surplus in city treasury in making improvements.

**Newkirk, Okla.**—A local organization to promote building of Oklahoma, Texas and Gulf highway has been completed when Kay County voted to join other counties in effort. A delegate was appointed to accompany officials of Highway Association into Kansas. Road is to extend from Dallas County, Texas, to the Kansas line. Only Dallas County now remains to be organized.

**Albany, Ore.**—First petition calling for competitive bids on surfaced pavement at Albany has been presented to City Council from property owners on Ninth St., being signed by nearly every property owner on street. In past petitions presented have specified a single particular kind of pavement, thus eliminating competition. This new method is expected to effect saving.

**Eugene, Ore.**—Ordinances have been read for paving of following streets: Monroe St. from 11th to 13th, 28 ft. wide, with 4 ins. of concrete and 2 ins. of asphaltic wearing surface; 10th Ave. east from Pearl to High, 34 ft. wide, from High to Mill, 28 ft. wide, both with 4 and 2 ins. of concrete and surface respectively; Mill St., from 10th to 13th, 28 ft. wide, with a 4 and 2-in. pavement; Alder St. from Ninth to the mill race, 28 ft. with 4 and 2; Fourth Ave. west from Charnelton St. to Blair Blvd, 30 ft. wide with gravel bitulithic; and 10th Ave. west from Olive to Charnelton St., 42 ft. wide, and from Charnelton to Monroe St., 34 ft. wide, both with gravel bitulithic.

**Klamath Falls, Ore.**—Ordinance providing for paving of 2d St. boulevard from Klamath Ave. to city limits at width of 80 ft. to meet proposed county road from Fair Grounds, has been passed by Klamath Falls City Council.

**Wampum, Pa.**—That Wampum is to have paved streets is assured now as nineteen property holders on main street have signed petition in favor of same. Streets are to be built of concrete.

**Spartanburg, S. C.**—City Engineer Tull has been requested to make estimate of money required to finish paving contemplated. Following are estimates of streets under consideration: Alabama St., from East Main to St. John, 2,773.33 square yards, cost \$4,021.23; Spring St., from Hampton Ave. to end of paving, 8,948 square yards, cost \$12,973.69; South Dean and Union Sts., from East Main to Cudd, 9,103 square yards, cost \$13,199.79; St. John St., from North Dean to Mrs. Britton's house, 1,195.22 square yards, cost \$1,733.07; East Main St., from end of pavement to city limits, 7,184 square yards, cost \$10,416.80; Park Ave., from Union to South Converse St., 4,680.89 square yards, cost \$6,787.29; South Converse St., Southern railway to Park Ave., 4,680.89 square yards, cost \$6,787.29; South Church St., from end of pavement to Columbia Ave., 5,397 square yards, cost \$7,826.12; South Church St., from end of pavement to end of curbing, 13,658.22, cost \$19,804.42; North Church St., end of pavement to end of curbing, 9,023.11, cost \$13,083.51. Mr. Tull explained to council that total cost would amount to \$86,362. With portion assessed from abutting property owners, city has appropriation of \$150,000; also \$15,000 which is to be utilized for sidewalk paving. Council has decided to let paving matter hold over until next meeting of council.

**Sumter, S. C.**—City Council has authorized several blocks of paving, to be

either brick or other modern paving suitable for business streets. W. F. Robertson is city manager.

**Nashville, Tenn.**—Before awarding a contract for paving Church St. from 12th to 21st Ave., Board of City Commissioners will investigate question of increasing width of street to extent of at least 10 ft.

**Nashville, Tenn.**—Ordinances have been passed for paving of great number of streets. Bitulithic, brick, bituminous macadam and granite on macadam foundation will be materials used.

**Austin, Tex.**—City Council has passed on its first reading resolution by Street Commissioner Powell providing for paving of Lavaca St., between 6th and 7th Sts.

**Cameron, Tex.**—Petition has been presented to commissioners' court from Thorndale and surrounding country, praying commissioners' court to order bond election for \$100,000 for road district No. 6 which comprises Justice Precinct No. 8, for purpose of building good roads in that precinct. Election was ordered by the court for Feb. 21.

**Corpus Christi, Tex.**—That during year 1914 property owners of Nueces County will vote on issuance of more than \$500,000 for modern roads throughout county is now assured.

**Denton, Tex.**—Date of election for issuance of \$300,000 worth of road bonds for this district has been changed by Commissioners' Court from Feb. 21 to Feb. 28.

**El Paso, Tex.**—Resolution has been passed toward securing scenic highway for city.

**Hillboro, Tex.**—Acting on petition of number of citizens of Justice Precinct No. 2, County Commissioners' Court has ordered election to decide whether good road bonds to amount of \$150,000 shall be issued in that precinct.

**Houston, Tex.**—Construction of 120-ft. boulevard from end of paving on Main St. to Rice Institute is asked for.

**Houston, Tex.**—Citizens' Committee of 25 to advise with Commissioners' Court in expenditure of recently voted \$1,000,000 for good roads has convened with determination to push matters to conclusion, as bonds have been sold and money is now in the bank. This committee will make its recommendations to Commissioners, who have the final say. Competition for improvement is keen.

**Houston, Tex.**—Sidewalk construction to great extent is being planned for this year.

**Itasca, Tex.**—Commissioners' Court of Hill County has issued order for election to ascertain whether bond issue of \$150,000 shall be allowed for District No. 2, Hill County. This district embraces Itasca and surrounding territory.

**Kaufman, Tex.**—Election held to issue bonds to pave court house square and Main St. to depot, also most prominent residence streets, has been carried.

**Lockhart, Tex.**—Road bonds in sum of \$50,000 have been sold to Lockhart National Bank.

**Lufkin, Tex.**—City is soliciting proposals from contractors for paving following streets in business district: First St., from Colton Belt Railroad to Shepherd Ave., surrounding City Park and Lufkin Ave., from City Park to Second St. Approximate quantities: Excavation, 3,300 cu. yds.; curb and gutter, 3,800 lin. ft.; pavement, 9,930 sq. yds. Specifications are: Foundation, 5-in. concrete in accordance with approved standard paving specifications; gutter, 2 ft. by 5 in. concrete; curb, not less than 5 ins. thick; concrete, wearing surface, not less than 2-in. rock asphalt or other bituminous substance of equal durability and wearing qualities. Abutting property owners will pay for improvements to center of street, city for intervening streets and alleys. Proposals should be accompanied with specifications, and copy of and term of guaranty. P. A. McCarthy & Sons of Lufkin are Cons. Engrs.

**McKinney, Tex.**—Commissioners' Court has ordered good roads election to be held in Celina good roads district No. 7 on Saturday, February 21. Issuance of bonds to amount of \$125,000 will be voted upon.

**McKinney, Tex.**—Commissioners' Court has ordered five good roads elections to be held in various districts of Collin County on Saturday, Feb. 21.

**Orange, Tex.**—Orange County Commissioners' Court has voted to make next repairs on lower Beaumont Road, upper Beaumont Road, Central Road to Beard's Bayou, Lemonville Road, Mauriceville Road, and Bancroft Road.

**Robstown, Tex.**—Taxpayers will vote a \$250,000 bond issue for construction of system of modern good roads throughout district.

**Temple, Tex.**—Advocates of good roads scored conspicuous victory in election held in thirteen voting precincts of Bell County, including city of Temple, voting bond issue of \$600,000 by vote of nearly four to one.

**Waco, Tex.**—Taxpayers will vote on Feb. 16 on \$65,000 bond issue for permanent paved streets.

**Waxahachie, Tex.**—In special election held in Midlothian good roads district to vote on proposition of issuing bonds in sum of \$35,000 for road construction measure was defeated. District had previously voted and expended \$75,000 in bonds on its roads.

**Salt Lake City, Utah.**—Without taking official action, majority of County Commission has decided to rescind former action of body in calling election Feb. 25 for purpose of issuing \$1,000,000 in bonds for road improvements and to postpone election indefinitely.

**Norfolk, Va.**—Board of Control will extend paving of West Liberty St., Berkeley, as far as entrance to training station.

**Norfolk, Va.**—Petition for smooth paving on Fairfax Ave., from Colonial Ave. to Botetourt St. has been referred to city engineer, with request for estimate of cost of this work.

**Olympia, Wash.**—State highway board has voted to call at once for bids for construction of remaining 25 miles of Sunset highway through Shoualmie pass from point four miles east of summit to point about 21 miles west. This stretch will connect work already contracted for at each end of highway. There is \$260,000 available for this part of highway, and it is aim of board to push work as rapidly as possible, with view to having it ready for early travel incident to Panama exposition next year. Board has also voted to call for bids for construction of Channel Hill stretch of National park highway, there being \$10,000 available for this work.

#### CONTRACTS AWARDED.

**Montgomery, Ala.**—For paving Bell St., to Jamieson & Hallowell, of Montgomery and Atlanta, Ga., at following bid: 100 lin. ft. 5-in. granite curb, 45 cts.; 800 lin. ft. granite curb reset, 10 cts.; 250 lin. ft. 5-in. headers, 40 cts.; 200 lin. ft. 15-in. terra cotta pipe sewers, 75 cts.; 6 brick inlets, each \$14; 13,000 sq. yds. bitulithic pavement, \$2.08; total, \$35,000.

**Manhattan Beach, Cal.**—For improving Highland Ave., from 37th St. to southern city limits, to Barber Asphalt Paving Co. of San Francisco at \$84,284.

**Pomona, Cal.**—Contract for paving to be done on First St., between Garey and Park Aves., has been awarded to Lon Fleming, whose bid of 10.3 cents per square foot was lowest of any of three which were submitted.

**San Francisco, Cal.**—Board of Works has awarded following contracts: Curbing and paving the intersection of Ninth St., San Bruno Ave. and Division St., to G. W. McGinn & Co., for \$10,003.45; curbing and paving Ninth, between Division and Brannan Sts. and San Bruno Ave., between Division and Alameda Sts., to R. Nugent for \$3,338.40 and \$2,850.85, respectively; improving 13th Ave., between Cabrillo and Fulton Sts., to Owen McHugh, for \$2,400.

**Ottawa, Ill.**—By Bd. of Loc. Impts. to James Sackley Co., 307 Chamber of Commerce Bldg., Chicago, at \$269,811 for improving number of streets in West Ottawa District.

**Peoria, Ill.**—By Board of Local Improvements, for paving with brick Glen-dale Ave. North, to McElwee & Bashell, 1317 S. Washington St., as follows: 3,600 cu. yds. excav., 40 cts.; 350 ft. stone pavement, curb, 4x14 ft., 40 cts.; 150 ft. sandstone curb, 4x18 ft., 40 cts.; 2,225 ft. sandstone curb reset, 12 cts.; 13,375 sq. yds. concrete foundation, 4-in., 40 cts.; 13,375 sq. yds. sand cushion, 1-in., 3 cts.; 13,375 sq. yds. brick pavement, 99 cts.; 13,375 sq. yds. grout fill, etc., 1 ct.; 4 catch basins, complete, each, \$50; adjusting sewer basins, etc., \$150; 50 sq. yds. relaying adjoining pavements, 40 cts.; total, \$21,403. Totals of other bids: Canterbury Bros., 516 Windom St., \$22,005; D. A. Meyers, 209 W. Armstrong Ave., \$24,027; A. D. Thompson, 129 S. Jefferson Ave., \$22,546; John McAllister, Edwards Flat, \$22,582. L. D. Jeffries is City Engr.

**Springfield, Ill.**—By Board of Local Improvements, contract to J. E. Betz, 205 W. Miller St., for constructing 580 sq. yds. brick paving in the alley between Monroe and Adams Sts., from Eighth to Ninth St.

**Columbia City, Ind.**—For paving with brick of Jackson and Walnut Sts., by city, to H. B. Holman, of Rochester, at \$39,108.

**Monticello, Ind.**—To G. A. Kellenburger, at \$11,595, for construction of By-road stone road.

**Williamsport, Ind.**—To Andrew McKinstry, Frankfort, Ind., at \$7,494, for construction of gravel road.

**Belle Plaine, Ia.**—Contract for paving has been awarded to Des Moines Asphalt Paving Co., Des Moines, Ia., as follows: Brick with sand filler, \$5,931.19 and Bermudez and Trinidad asphaltic concrete, \$65,862.18. Total bid, \$71,793.37. Chas. P. Chase is Con. Engr., Clinton, Ia.

**New Orleans, La.**—Bid of Barber Asphalt Paving Co. has been accepted for repaving with "pitch lake asphalt" both sides of Peters Ave., from St. Charles Ave. to Magazine St., by petition of property owners; also for paving with "pitch lake asphalt" Apricot St., from Carrollton Ave. to Joliet St.

**St. Mary's City, Md.**—To Wm. P. McDonald Construction Co., of Mount Vernon, N. Y., at \$37,361, to pave 5.38 miles road between St. Mary's City and Leonardtown.

**Kosciusko, Miss.**—By County Commissioners, to McTighe, Hughey & McTighe, Hazelhurst, Miss., for about 10 miles road work.

**Vicksburg, Miss.**—To Southern Paving Co., Chattanooga, Tenn., by City Comrs., as follows: N. Monroe St., asphalt, \$11,678; brick, \$12,931; 3-in. wood block, \$14,394; 3½-in. wood block, \$15,370; Jackson St., asphalt, \$41,110; brick, \$45,250; 3-in. wood block, \$50,141; 3½-in. wood block, \$53,402; Shannon Alley, asphalt, \$1,214; brick, \$1,35; 3-in. wood block, \$1,497, and 3½-in. wood block, \$1,605.

**Missoula, Mont.**—For construction of 8,580 sq. yds. bitulithic pavement with concrete foundation to J. C. Maguire, Butte, Mont., at \$2.37 per sq. yd. Also for 1,810 lin. ft. concrete combination curb and gutter (24-in. gutter) at 77 cts.; 200 lin. ft. concrete curb, plain 6 in. x 18 in., at 45 cts., and 120 lin. ft. concrete gutter at 40 cts. Ferd. E. Buck, C. E.

**Hendersonville, N. C.**—To Atlantic Bitulithic Co., Richmond, Va., for paving of Fifth Ave., from Main St. to city limits, about one mile in length.

**Ohio.**—By State Highway Commissioner Columbus, for grading and paving following roads: Springfield, with water-bound macadam, National Road, Bechtel Township, Clark Co., to Graham & Kenner, of Columbus, \$14,798. Portsmouth, with brick, Portsmouth-Columbus Road, Clay Township, Scioto Co., to C. H. Rice, Belmont, \$15,883. Lancaster, with water-bound macadam, Lancaster-Newark Road, Walnut Township, Fairfield Co., to John P. Kistler, of Lancaster, \$22,713.

**Zanesville, O.**—To A. Amery & Son of Zanesville for paving of Woodlawn Ave., Madison to Harrison Sts.; Woodlawn Ave., Coopermill road to Pierce St., and Pierce St., Woodlawn to Putnam Aves., at total cost of \$12,308.

**Harrisburg, Pa.**—By State Highway Commissioner Bigelow contract for resurfacing of road in New Castle Township, Schuylkill County to Haupt Bros., of Frackville, at \$3,901.64.

**Dallas, Tex.**—Approval has been given by Board of Commissioners to project for paving Garrett from Monarch to city limits on north, property owners to pay whole cost. Material used will be Uvalde rock asphalt. Work will be done by the Standard Engineering & Construction Co., whose charge will be \$736.14.

**Richmond, Va.**—By Town Council to Continental Public Works Co., 2 Rector St., New York, for street improvements to cost \$75,000; principal street is Chamberlayne Ave., west side of which will be paved with sheet asphalt and east side with asphaltic concrete on concrete base; other streets will be paved with bituminous concrete and those having light traffic will be macadamized and surface oiled.

**Port Angeles, Wash.**—To Lewis, Wiley & Morse, Central Bldg., Seattle, at \$194,000, for grading, filling, trestle work, grubbing, curbs, walks, etc., on Railroad Ave., Oaks and Laurel Sts.

**Kalama, Wash.**—To Ambrose-Burdal Co., Portland, Ore., at \$38,519, for construction of permanent highway No. 1, Pacific highway, Cowlitz County, using bituminous macadam.

**Vancouver, B. C.**—For paving as follows: to the Columbia Bitulithic Co., 402 Pender St., Vancouver, S. Cambria St., with asphaltic concrete pavement, in tracks, \$42,428; Commercial Drive, with asphaltic concrete, stone blocks in tracks \$20,385; Fir St., with asphaltic concrete, \$7,317; Cornwell St., with asphaltic concrete, \$18,894, and 11th Ave., with sheet asphalt, \$4,745. To H. J. Kaiser, of Van-

couver, for paving Victoria Drive, with asphaltic concrete and brick block, \$133,922. No contracts were let for paving Venables, Parker, Alexander, Cordova Sts., 13th and 11th Aves., work to be postponed for present. F. L. Fellowes is Supervising City Engr.

## SEWERAGE

**Bridgeport, Conn.**—Following bond issue has been proposed by Alderman Miller: \$300,000 for the construction of sewers; to be dated July 1, 1914, bearing interest at the rate of 4½ per cent. a year, and to be retired at rate of \$10,000 a year.

**New Haven, Conn.**—City will issue bonds to amount of \$530,000 immediately, of which \$50,000 is for sewer improvements and \$480,000 for permanent pavements. Entire issue has been taken by Estabrook & Co., of Hartford, & R. L. Day & Co., of Boston, Mass. Total bid was \$535,735.

**De Land, Fla.**—City Council has engineer at work on survey for septic sewerage system, estimating cost of same and cost of brick pavements of certain streets.

**Orlando, Fla.**—Orange Ave. property owners and city commissioners have decided to have sewer pipes for business section laid in alleys instead of in front.

**Alton, Ill.**—Construction of sewers on Logan Ave. is being planned.

**Fort Wayne, Ind.**—Board of Works will within next few weeks ask for bids on furnishing and installation of set of pumps for relief of Lakeside sewer and Forest Park sewer during flood periods, when backwater from rivers drowns these sewers.

**Vincennes, Ind.**—City Engineer Harry T. Watts has nearly completed plans for storm sewers in downtown section of city.

**Paducah, Ky.**—Construction of new sewer system is being planned. According to statement of Alderman Lackey, president of the Upper Council Board, \$30,000 will be placed in sewer fund this year, and with \$30,000 apportioned last year, bids will be asked in short time for construction of big sewer from Perkins Creek, back through west end as far as appropriation will take it, then each year it will be extended until entire city now outside of water districts 1 and 2 will have drainage. This \$60,000, it is thought, will bring main stem as far as Trimble St.

**Allee, Minn.**—Construction of sewer system is being petitioned for.

**St. Louis, Mo.**—Plans and specifications for two new sewer districts, Glaise Creek Districts Nos. 1 and 2, have been prepared by city engineering department.

**Fort Benton, Mont.**—Citizens will vote on Jan. 30 on \$33,000 bond issue for construction of sewerage system.

**Bloomfield, N. J.**—Concurring in recommendation of Joint Sewage Disposal Committee of town, Bloomfield Town Council has voted unanimously to seek permission from 15 municipalities who have signed trunk sewer contract for Bloomfield to enter into pact with equal rights in flume. Mr. Sadler said it was proposed to ask that town be permitted to join in plan at price originally proposed, which is approximately \$178,000.

**Jersey City, N. J.**—It is expected that work will soon begin on building of Passaic Valley trunk sewer across upper Bayonne from Newark Bay to New York Bay. Material is now on the ground. Proposed sewer will be 100 ft. below surface, 16 ft. in diameter and empty. Its contents 40 ft. below surface of New York Bay near Robbins Reef Lighthouse. It will run near 54th St., Bayonne. Sewer starts at Paterson, 26 miles from New York Bay, into which it will empty.

**Millville, N. J.**—Appropriation of \$2,000 has been recommended for changes at sewer bed.

**Brooklyn, N. Y.**—At last meeting of the Board of Estimate, authorizations were given for twenty-two public improvements for Brooklyn, estimated total valuation of which is \$305,000, and thirteen for Queens, valuation \$187,900. Most important of final authorizations for Brooklyn was that for number of big sewer mains on Coney Island, estimated cost of which is \$130,000. It includes Surf Ave. from West Nineteenth to West Twenty-seventh St.; in West Twentieth and Twenty-first Sts. from Surf Ave. to Mermaid Ave. and in West Twenty-third St. from Surf Ave. to a point in the Atlantic Ocean, 1,000 feet south of Surf Ave. Final authorization was given for sewers in Sixty-first, Sixty-second and Sixty-sixth Sts., from

Fifteenth Ave. to Sixteenth Ave.; in Sixty-third St. from Fifteenth Ave. to Seventeenth Ave.; in Sixty-seventh St. from New Utrecht Ave. to Seventeenth Ave. and in Sixteenth Ave. from Sixtieth St. to Sixty-sixth St., the estimated cost of which is \$30,000.

**Goshen, N. Y.**—New York State Board of Health has approved plans and specifications drawn up by Engineer Clyde Potts, for proposed new sewer disposal system. Now that approval has been secured, business of acquiring rights of way, and of advertising for bids, and subsequently awarding contract will be instituted as soon as feasible and work rushed through to completion with all reasonable speed.

**New York, N. Y.**—A new sewerage system for New York City, providing for scheme of drainage, sewage collection and construction of island in shallows about three miles off Coney Island for disposal plant, are principal features of recommendations in report just made public by Metropolitan Sewage Commission. Five members suggest that new commission be appointed to build new system, which they estimate will cost city about \$37,000,000. Preliminary estimates made by George A. Soper, a member of the commission, put cost of building island and its connecting fifteen-foot tunnel under East River and Brooklyn at \$22,874,000. Other construction necessary to free waters of New York from sewage has been estimated at enough to bring total expenditure up to \$37,113,320.

**Hamilton, O.**—Resolution is before Council providing for preparation of plans for storm sewers east of canal.

**Port Washington, L. I., N. Y.**—Petition is being circulated for construction of sewers.

**Rochester, N. Y.**—Final plans for new sewage disposal system are being submitted by Consulting Engineer E. A. Fisher to Health Commissioner Eugene H. Porter for his approval. Following adoption of plans will come the advertising of bids for actual work, and it is hoped to start construction work this spring.

**Yorkville, N. Y.**—Bids have been opened for \$2500 of sewer bonds.

**Lima, O.**—Mayor Robb strongly recommends establishment of sewage disposal plant.

**Youngstown, O.**—Bonds in sum of \$32,000 will be sold January 26 for paying city's portion of cost of Brier Hill district sewer, \$1,650 for sewer in Pearl St., and \$24,900 to pay for Brier Hill district sewer between northerly city limits and Mahoning river. D. J. Jones is city auditor.

**Erie, Pa.**—Ordinance has been passed providing for construction of nine-inch diameter lateral tile sanitary sewer in Plum St., in City of Erie, Pa., extending from center of 23d St. south 230 feet, more or less, together with necessary house connections; also for construction of a nine-inch diameter lateral tile sanitary sewer in 21st St., in the City of Erie, Pa., extending from center of Poplar St. west 210 feet, more or less, together with necessary house connections. M. T. Henry is Clerk of City Council.

**Lansdale, Pa.**—Special election will be held March 3 to vote on a \$75,000 bond issue for purpose of constructing main sewers and sewerage disposal plant. Plans for complete system and sewerage disposal plant have been approved by State Department of Health. Charles E. Collins of Philadelphia, Pa., is engineer and Samuel D. Conner is borough secretary.

**North Wales, Pa.**—At special election to increase indebtedness of this borough, bond issue for \$40,000, to provide sewer system, was carried by vote of 171 for to 105 against.

**Scranton, Pa.**—City Engineer Wm. Schunk has made plans for two relief sewers, one to cost \$78,500 and the other \$79,500.

**Houston, Tex.**—Sewer bonds of Houston Heights will be sold shortly. Mayor Isbell will appoint citizens' committee, which will be composed of representative citizens of Houston Heights, and it will superintend matter of construction of sewer system.

**Houston, Tex.**—Plans and specifications for construction of storm sewers on Holman Ave. from Milam to San Jacinto St. and from Austin to Crawford, with laterals on Fannin from Francis to Berry, have been prepared in city engineer's department. Bids for this work will be advertised next week, so that the work may be started as soon as possible. Paving of Holman Ave. will follow laying of the sewers.

**San Antonio, Tex.**—Alderman Lambert has introduced ordinance appropriating \$4,000 to build storm sewers on East



Commerce St., which is soon to be paved. Work will be done in accordance with plans prepared by Sewer Engineer Gray.

**Waco, Tex.**—Taxpayers will vote on Feb. 16 on \$15,000 bond issue for storm sewers, and \$10,000 bond issue for sanitary sewers.

**Wharton, Tex.**—It is expected that sewerage bonds of city will shortly be sold.

**Salt Lake City, Utah.**—To provide work for unemployed men of families of Salt Lake City, Commission has authorized street department to begin work as soon as possible in constructing proposed Fifth South storm sewer from Sixth West to the Jordan River at cost of about \$5,500.

**Salt Lake City, Utah.**—By decision of City Commission, taxpayers of Salt Lake will vote on February 18 on proposition of issuing \$900,000 in bonds for sewer and waterworks improvements. Sum of \$375,000 will be for sewer work. Amount asked for sewers is to provide main sewer of seven or eight ft. diameter from Eighth West and Tenth South to the pump station, a new unit at the pumping station on Ninth North, a pipe line across the Jordan River, a canal to lake and completion of sewer laterals in southern and southwestern sections of city.

**Onalaska, Wis.**—Council is considering installation of sewerage system. C. L. Hood is City Attorney.

**Superior, Wis.**—City Commission has passed resolution ordering construction of sewers in various parts of South End, both east and west of Tower Ave. Sewers will serve such portions of Eighth Ward as are not already reached by drainage system.

**Niagara Falls, Ont., Can.**—The International Commission on border stream pollution has submitted its report, and as soon as it is made known what requirements will have to be met in way of disposing of sewage, plans for proposed trunk sewer along Murry Run Creek will be made. In all probability many changes will be made in original plans prepared three years ago by Engineer Carl Gardner. His plans called for sewer from present outlet of creek to point just west of Victoria Ave. It is now proposed to follow course of creek only as far as Morrison or Huron St., and continue it from there to river through one of these streets. Sewer will be built of reinforced concrete, and will cost approximately \$100,000.

#### CONTRACTS AWARDED.

**Oakland, Cal.**—Contracts for extension of concrete sewers in 14th and 10th Aves. from their present termination to United States bulkhead line have been awarded to Mervy-Elwell Co. of Oakland by City Council. At same time contracts for extending sewers in 16th, 17th and 18th Aves. have been awarded to J. J. Carter.

**San Francisco, Cal.**—By Board of Works for constructing sewer in Ashton Ave., between Grafton and Ocean Aves., to William Heafy, at \$3,623.90.

**Washington, D. C.**—To George Hyman, city, for construction of 44th St. sewer, as follows: 65 cts. per cu. yd.; sewer brick masonry, \$13; 18-in. sewer, 75 cts. per cu. yd.

**Washington, D. C.**—For construction of sewer in Broad Branch Road by Commissioners of District of Columbia to Warren F. Breinzer Co., 142 Q St. N. W. **Bloomfield, Ia.**—For laying sewers, to Tschirgl & Son, Cedar Rapids, Ia., at \$8,300.

**Galesburg, Ill.**—Pine St. sewer contract has been awarded by Board of Local Improvements to J. B. McAuley. His bid was \$500.18 and bid of \$514.20 was received from P. H. Tiernan. Sewer runs from Maiden Lane to Pine St.

**Atchison, Kan.**—For construction of sewers in Sewer District No. 7 to J. W. Kelso. Bids were as follows: O'Neil Construction Co., \$4,941.95; Geiger Construction Co., \$4,608.45; Williams & Sample Construction Co., \$5,027.55; P. W. Barnett, \$4,567.20; J. W. Kelso, \$4,387.05. F. S. Altman is C. E.

**New Orleans, La.**—To Nordberg Mfg. Co., at \$159,042, for Contract 58-D, pumps and flood gates for drainage system.

**New Orleans, La.**—Bid of Grasser Contracting Company has been accepted for installing sub-surface drains, etc., in connection with paving of Apricot St., from Carrollton Ave. to Joliet St.

**Kansas City, Mo.**—By Board of Public Works, for sewers, to L. E. Koehler, 78th St. and Troost Ave., at \$5,207.

**St. Joseph, Mo.**—For constructing sewer in Dist. 138, to J. Marnell of St. Joseph at \$8,605.

**Baneroft, Neb.**—By City Council, contract to H. P. Cathroe Co., 503 Wave

Block, Omaha, for construction of a sewerage system comprising 15,000 ft. of 8-in., 2,000 ft. of 10-in., 4,000 ft. of 12-in., and 3,000 ft. of 15-in. vitrified pipe, 52 manholes and 15 flush tanks. Lowe Engineering Co. are Engrs., 1123 City National Bank Bldg., Omaha.

**Scottsbluff, Neb.**—To Gordon & Taylor, Century Bldg., Denver, Colo., at \$16,120, for constructing sewer laterals for Scottsbluff. Yoder & Liljenstolpe are Consult. Engrs.

**Newark, N. J.**—By Passaic Valley Sewer Comrs. for constructing Sect. 12 of main intercepting sewer in Township of Acquackanonk, and city of Passaic, to Oscar Daniels Co., New York, N. Y., at \$277,550.

**Eugene, Ore.**—To C. H. Mahony contract for \$1,170.75 to build sewer in alley between Jefferson and Washington Sts., from Fifteenth to Nineteenth.

**Winlock, Wash.**—To Geo. Gordon, of Portland, Ore., for construction of sewer system at \$5,941.

#### WATER SUPPLY

**Avalon, Cal.**—City Engineer's plans have been accepted by Bd. of City Trustees for water works to cost \$68,000.

**El Monte, Cal.**—Citizens have voted on matter of issuing bonds in sum of \$46,250 for purpose of constructing municipal water system. Issue was authorized by vote of 205 to 85. Vote also authorized purchase of local private plant for sum of \$2,500. This leaves city \$43,750 for development purposes.

**Stamford, Conn.**—Larger water mains will be laid in center of city this spring.

**Washington, D. C.**—District Commissioners have ordered number of water main extensions, among them being main in Brightwood, long requested by residents of that section. Under order 800 feet, more or less, of 12-inch water main will be laid in Bryant St., northeast, between 18th and 21st Places; 350 feet, more or less, of 8-inch main in 20th St., northeast, between Bryant and Channing Sts.; 430 feet, more or less, of 8-inch main in Denison Place, northwest, between DeRussey and Sheridan Sts., and 425 feet, more or less, of 8-inch main in Conduit Road, between Dana and Edmunds Places, northwest.

**Grand Ridge, Ill.**—Installation of water works has been voted for.

**Humeston, Ia.**—Town has voted in favor of bond issue of \$21,000 for water works system.

**Grand Rapids, Mich.**—Plans are being prepared by City Engineer Stevens and will advertise for bids shortly for necessary piping in connection with new pump.

**Lansing, Mich.**—Election will be held on Feb. 5, to vote on bond issue of \$200,000 for installation of high pressure system. Harry A. Sparks is City Engineer.

**Flora, Miss.**—Citizens have voted \$10,000 bonds for construction of water works.

**Vicksburg, Miss.**—A. L. Dabney, of Memphis, engineer called here by Mayor and Commissioners to study situation with view to constructing modern and up-to-date water works system by city, has concluded his observations and furnished report to city government. Work on plans will begin at once. These contemplate system of water works owned and operated by city, with best improved machinery, by which adequate supply of water may be furnished on most equitable terms possible. Mr. Dabney has submitted estimates which will assure ample supply of water for city of 100,000 inhabitants, cost of which is placed at \$364,000. Work on new project will begin as soon as practicable.

**Roundup, Mont.**—Citizens have voted \$60,000 in bonds for purchase of Roundup Water Co.'s plant.

**Atlantic City, N. J.**—Finance Director Albert Beyer has sold issues of city bonds totaling \$675,000 to a New York syndicate. Over \$350,000 of funds received will be used to defray expenses incident to improvements to city's water system, including an additional pipe line across meadows to be used in emergencies. Rest of money will go for paving and drainage projects.

**East Orange, N. J.**—It has been decided to meter southern section of East Orange at meeting of Water Commission.

**Cohleskill, N. Y.**—Citizens have voted to spend \$12,000 for construction of pressure filter.

**Ithaca, N. Y.**—Sum of \$4,000 has been voted for water extensions on following streets: Mechanic St., between Toga and Aurora Sts., 530 feet; Mill St., between Park Pl. and Washington St., 270 feet; Madison St., Fifth to Third Sts., 670 feet; Hancock St., Willow Ave. to Auburn

Sts.; Monroe St., First to Third Sts., 660 feet; Lake Ave., from Herson property to Hancock St., 200 feet; north line of Washington St., to Cascadilla St., 320 feet.

**Mt. Vernon, N. Y.**—Plans are being considered for proposed water supply.

**West Asheville, N. C.**—Election will be held on Feb. 10, to vote on bond issue of \$50,000 for water works and sewerage systems.

**Youngstown, O.**—Bonds in sum of \$200,000 will be sold January 26 for erecting, extending, improving, furnishing, equipping and securing more complete enjoyment of water works of city of Youngstown and for supplying water to corporation and inhabitants thereof, by construction and equipment of pumping station.

**Gardiner, Ore.**—Election may shortly be petitioned for to authorize issue of bonds to install efficient filter plant and extend water mains to South Gardiner.

**Altoona, Pa.**—It is quite likely that members of city commission will in near future take up question of constructing additional high service reservoir on Prospect Hill.

**Kittanning, Pa.**—Contract for building of big dike across Graff's field, from street car station to railroad track, has not as yet been let. There are but two bidders on job. They are firm of Lenus Heilman & Co., and Andrew Heilman, of Manor Township.

**Kutztown, Pa.**—The Kutztown Water Company has resolved to sell its plant to borough, providing latter pays all indebtedness, assumes bonded indebtedness of \$50,000 and pays \$50 a share for 500 shares of stock.

**Mohrsville, Pa.**—Mohrsville Water Co. will spend \$10,000 and double present capacity.

**South Bethlehem, Pa.**—Chief Burgess Wm. H. Hoffman recommends installation of water plant.

**Salt Lake City, Utah.**—Recommendation that portion of proposed bond issue of \$525,000 for water works improvements be used for immediate construction of three intake reservoirs in City Creek Canyon of about 1,000,000 gallons capacity each, is to be made to City Commission in event bond proposition is sanctioned by voters at coming election. It is estimated that cost of reservoirs will be about \$10,000 each, making total of about \$30,000 for three. He would have them constructed at brick tank, 20th Ward tank and intake of new high line.

**Salt Lake City, Utah.**—By decision of City Commission taxpayers of Salt Lake will be asked to vote Feb. 18 on proposition of issuing \$900,000 in bonds for water works and sewer improvements in city. Sum of \$525,000 will be asked for water works and \$375,000 for sewer work. Among water improvements planned under bond election are new supply line on 13th South, and feed mains on Ninth East, additional water mains in city, widening of East Jordan canal to carry double its present flow of water, completion of Lakes Phoebe-Mary and Twin Lakes reservoir, distributing reservoir on east bench, another at old high line in City Creek, building of first unit of big reservoir dam in Parleys Canyon, acquisition of new water rights and construction of intake reservoirs in City Creek.

**Jackson, Tenn.**—Voters will vote on \$35,000 bond issue for laying of water main from water works to center of city.

**Wheeling, W. Va.**—Council has voted to instruct Board of Control that wells had been located throughout city and they were ready for bids.

**Green Bay, Wis.**—People of city will be given chance to express their views on question of municipal ownership of water works plant at special election to be held on day of spring election.

#### CONTRACTS AWARDED.

**Colorado Springs, Colo.**—To J. C. St. John, city, at \$30 and \$32 per ton, for furnishing of 4-inch and 6-inch iron pipe.

**Westmoreland, Kan.**—To O'Neill Construction Co., Leavenworth, Kan., contract for constructing system of water works at Westmoreland. Cost, \$40,000.

**Baltimore, Md.**—By Board of Awards contract to Lock Joint Pipe Co., 165 Broadway New York, N. Y., at \$225,925, for Gunpowder Supply Contract 17, constructing water mains.

**Boston, Mass.**—Lowest bid for contract to construct underground high-pressure pumping station on Charles St. has been submitted by the Westinghouse Electric & Manufacturing Co. When bids were opened it was found that Westinghouse concern submitted four sets of bids, varying from \$179,300 to \$189,570. The Allis-

Chalmers Manufacturing Co. bid \$211,500, and the Hixon Electric Co. submitted four bids, varying from \$201,042 to \$212,867. All bids were taken under advisement by Commissioner Rourke.

**Atlantic City, N. J.**—To Eugene Boehn, Atlantic City, for constructing 500 ft. of 48-in. cast iron syphons in Beach and Thoroughfare.

**Mt. Morris, N. Y.**—To George B. Richardson, Ridgewood, N. J., at \$34,794, for construction of new supplemental water works system, including laying of pipe, erecting filtration plant and new reservoir. Pipe will be furnished by city.

**Valiant, Okla.**—To Davis & Baum, Caddo, Okla. at \$32,700, for construction of water works system.

**Coatesville, Pa.**—Bids for construction of new water works for Coatesville, for which people bonded town in \$185,000 at special election last August, have been opened by Council. For construction of reservoir and dam the C. G. Coon Construction Company, of Luzerne, was lowest bidder, \$67,301.88; for water purification plant the W. G. Fritz Company, Newark, N. J., won, at \$30,380.80; for pressure conduit from reservoir to borough in cast iron, Partridge & Burke, Hohokus, N. J.; in wood, G. C. Saunders, Lancaster, \$21,718.00.

**Philadelphia, Penn.**—To Dill & Collins contract for construction of pumping station on Delaware Ave., to Latra & Terry Construction Co., Philadelphia, at \$7,500.

**Longview, Tex.**—For construction of new waterworks power house on bank of Sabine River to Roach & Mannigan of Forth Worth.

## LIGHTING AND POWER

**Pasadena, Cal.**—Resolution has been adopted by Commission of City of Pasadena of its intention to order construction and installation of posts, conduits, wires, lamps, and other suitable and necessary appliances in, upon and along St. John Ave. for purpose of lighting.

**Meriden, Conn.**—Board of Aldermen has given Meriden Electric Light Co. permission to lay underground conduits in business district. Present plans provide for laying about 1½ miles of conduits, at cost of about \$50,000.

**Jacksonville, Fla.**—Itemized bids for underground electrical cables for city fire alarm system have been received from Florida Electric Co., President, H. R. Worthington, approximating \$5,000 on one bid and \$5,500 on a second bid. The Okenite Co., of New York city, made lump bid for this work, exact figures being \$5,740.43. In two bids submitted by Florida Electric Co., supplies named in one instance were those of General Electric Co. and in other the American Electric Works. All of these bids were referred to fire committee, George H. Mason, chairman, with power to act. Contract for furnishing city with magnetite tub transformers and arc light equipment was awarded to General Electric Co., through G. C. Henry, general manager of headquarters established in Jacksonville. Total amount named in contract was \$12,104.50.

**Pensacola, Fla.**—Proposition is being considered for better lighting of business district.

**Streator, Ill.**—Mayor has practically perfected all arrangements for installation of boulevard system of lighting for Main St. provided these arrangements meet with approval of property owners along street. Plan as introduced by Mayor Jackson is as follows: From Oak St. to Sterling St. twenty-four 4-amp. inverted magnetite arc lights are to be used on 24 ornamental poles. They are to be placed 150 feet apart on each side of Main St. and 40 feet apart across the street, but not parallel with each other.

**Fort Wayne, Ind.**—Board of Works and Mayor Hosey are discussing character of machine to be purchased for addition that is to be built to municipal light plant. Arc lamp machines are working with overload since installation of new ornamental light system, and before any additional lights may be placed new machine must be purchased. Board plans spending \$75,000 or \$80,000 for addition and machinery.

**Goshen, Ind.**—City has made arrangements for a temporary loan of \$35,000 to provide funds for reconstructing municipal electric light plant.

**Cedar Falls, Ia.**—Special election for issuance of \$25,000 in bonds, in addition to \$50,000 already issued, is called for Feb. 16. Money is to be used in constructing municipal electric light and power plant.

**Ashland, Kan.**—Managers of municipal

electric light plant expect to purchase material for distribution system in a few months, including transformers, poles, lightning arresters, insulators, distribution cable and wire, meters, electrical appliances, including heating and cooking apparatus, vacuum cleaners, washing machines, wiring supplies, etc. A. W. Hawes is manager.

**Holyrood, Kan.**—People of Holyrood want municipal electric light plant and expect to hold special election this spring to vote bonds for building system.

**Irvine, Ky.**—Electric lighting is being considered.

**Winchester, Ky.**—City is discussing establishment of electric light plant to maintain ornamental street lighting system recently installed.

**Baltimore, Md.**—At request of First Branch Councilman John D. Spencer of Fourth Ward, Superintendent of Lamps and Lighting McCuen has decided to extend "White Way" lighting system on Baltimore St. from Paca St. to Fremont Ave. At present "White Way" system ends at Paca St.

**Lansing, Mich.**—City will shortly purchase about one-half mile of underground conduit for municipal electric light system; also material for distribution system. C. D. Dodge is superintendent.

**Austin, Minn.**—Board of Public Works expects to purchase in a few months' time a coal and ash-handling system, material for underground conduit, distribution cable, wire and posts. William Todd is Superintendent.

**Helena, Mont.**—Helena will hold special election March 28 to vote upon question of giving franchise for electric lighting to Standard Engineering Corporation.

**Camden, N. J.**—City Council has entered into new contract with Public Service for street lighting by which taxpayers will save upwards of \$35,000 during next five years.

**Paterson, N. J.**—Campaign has been started for installation of street lights.

**Perth Amboy, N. J.**—Installation of "white way" on State St. is being considered.

**Wildwood, N. J.**—New lighting system will be installed on boardwalk in Second and Third Wards in place of incandescent lamps. Ornamental standards carrying five-lamp clusters will be erected.

**Fulton, N. Y.**—Mayor F. E. Fox has stated that he would bring to attention of Common Council and Board of Public Works, as soon as practicable, question of providing additional street lights for business section.

**Niagara Falls, N. Y.**—A bill to appropriate \$50,000 for illumination of Niagara Falls provisional on appropriation of like amount by Province of Ontario will be introduced at Albany by Assemblyman John W. Williams.

**Syracuse, N. Y.**—Resolution will be voted on recommending establishing of municipal electric plant.

**Throopville, N. Y.**—Committee has been appointed by the taxpayers of Throopville, town of Throop, to investigate number of electric lights necessary to illuminate streets of hamlet. Members will also determine cost of lighting system and decide from what source it would be best to get current.

**Wilmington, N. C.**—Resolution has been adopted authorizing Mr. C. C. Loughlin, councilman in charge of water and sewerage department, to have survey made to ascertain what it will cost to install and maintain municipal lighting plant.

**Cincinnati, O.**—Public meeting will be held by Committee on Light of Council to consider entering into of new contract with Union Gas and Electric Co. to furnish electricity to city.

**Huron, O.**—Bonds in sum of \$5,000 will be sold by Village Clerk until 12 noon, Feb. 15 for making repairs to electric light works. F. R. Toomey is Clerk.

**Sioux Falls, S. D.**—City will purchase 76 magnetic-arc lamps and iron poles with underground installation and rectifier for 100 lamps in a few months. P. O. Hanson is electrician.

**Nashville, Tenn.**—Negotiations have been opened by city commissioners of Nashville with Tennessee Power company to furnish current to illuminate streets and for other municipal purposes. If these are successful Nashville's city light plant will be sold. It is claimed plant has been costing city \$80,000 annually.

**Norfolk, Va.**—Virginia Railway and Power Company has been instructed by Board of Control to install additional arc lights.

**Niagara Falls, Ont., Can.**—City Engineer Anderson has completed plans and specifications for proposed new lighting

system in River road, and will probably submit them to City Council. Plans include two different system of illumination, both include ornamental standards. One is to place arc lamp similar to those in use across river on each standard. Other is to place five incandescent tungsten lamps behind glass projectors in such manner as to diffuse light equally in all directions.

## CONTRACTS AWARDED.

**Jacksonville, Fla.**—By Bd. of Bond Trus. to General Electric Co., of Schenectady, N. Y., for furnishing city with magnetite tub transformers and arc light equipment, at \$12,104.

**Lapeer, Mich.**—Contract for lighting county buildings for coming year has been closed by board of supervisors with F. J. Schlegel Light and Power company.

**Lockport, N. Y.**—Building of hydro-electric power plant with equipment to operate and illuminate recently completed new locks on barge canal work here and of two steel lift bridges, one in Middleport and other in this city, comprises work to be done on Tonawanda-Gasport section of canal in near future, according to State Engineer John A. Bessel's bulletin. Contract for erecting power house is held by McArthur Bros. Co. and Lord Electrical Co. of New York City.

**Pittston, Pa.**—By City Council, to Citizens' Electric Illuminating Co., Pittston, for lighting city for term of 10 years. Resolution has been adopted, authorizing installation of 126 additional arc lights, and 154 more tungsten lamps.

**Norfolk, Va.**—By Board of Control to James L. Belote a contract for motors and pumps for use of sewer department, at cost of \$217,650.

**Seattle, Wash.**—For installation of cluster lights on 5th Ave. Sub. Div. No. 1 to Dicken & Rightmire, 2738 33d Ave., S., at \$12,279.

## FIRE EQUIPMENT

**Anaheim, Cal.**—Election will be held January 27 for voting on \$8,000 bond issue for fire hall and \$7,000 for new modern fire fighting apparatus.

**New Britain, Conn.**—Purchase of a motor pumping engine is under consideration. John A. Meehan is Commissioner of Public Safety.

**Milford, Del.**—Purchase of a motor combination chemical and hose wagon is being considered.

**Jacksonville, Fla.**—Purchase of fireboat is strongly recommended.

**Canton, Ill.**—Chief Clyde Totten has recommended purchase of motor combination chemical and hose wagon.

**Lexington, Ky.**—Purchase of one piece of motor apparatus, one new fire alarm switchboard and 12 additional boxes has been recommended by Chief Jesse.

**Paducah, Ky.**—Sum of \$7,000 has been set aside for purchase of combination truck and hose wagon for fire department.

**Portland, Me.**—Purchase of auto fire apparatus is recommended.

**Albion, Mich.**—If proposition now being discussed by Common Council goes through, local fire department will be outfitted with motor equipment in near future. Sale of present horse equipment will help pay cost of new trucks.

**Jersey City, N. J.**—Director Hague has presented this statement of immediate requirements of department, in order to bring it up to proper standard of efficiency; four new motor driven trucks, \$44,000; nine tractors for Engines No. 1, 2, 3, 5, 6, 7, 8, 9 and 10, \$45,000; five tractors for Trucks No. 1, 2, 3, 4 and 5, \$22,500; one motor driven engine to take the place of Chemical No. 4, \$10,000; one motor driven tender to be on duty at headquarters for emergency purposes, \$5,000; eight new engines (motor drawn), \$80,000; 46 additional men, \$46,000; new hose, \$5,000; bed springs, wardrobes for 46 men, \$3,000; one auto supply wagon for telegraph superintendent, \$1,200; 10 miles of copper wire, \$1,000; new fire alarm boxes, \$10,000; repairs and alteration for department repair shop, \$5,000; repairs to old Sixth Precinct Station House so that it may be used for the housing of a spare truck and engine, \$1,500; total, \$279,200.

**Millville, N. J.**—Millville City Commissioners have decided to purchase combination chemical fire engine and hose wagon.

**Millville, N. J.**—Appropriation of \$2,200 has been recommended for fire alarm and police system; \$1,000 for West Side fire house, and \$5,000 for auto chemical and hose cart.

**Morrisville, N. J.**—Installation of fire alarm system is being considered.

**New Brunswick, N. J.**—Fire Chief Francis recommends that all apparatus



should be motor-driven; also purchase of 500 ft. of 3-in. hose, life net, a 35-gal. chemical tank and a chief's auto.

**Lestershire, N. Y.**—At special meeting of Lestershire fire department, called by Chief C. Fred Johnson, matter of motorizing Lestershire equipment was taken up in detail. Mr. Johnson stated that equipment which he proposes to purchase cannot be duplicated for \$13,500. The combination wagon will carry two chemical tanks, 1,200 ft. of hose and have a speed of 25 miles per hour. The hook and ladder truck will carry 300 ft. of ladder and has compartments for 20 men. Ladders will be in 20-ft. lengths, so arranged that five men can raise 50 ft. of ladder.

**Mamaroneck, N. Y.**—The Weaver St. Fire Co. is agitating installation of fire alarm system for that section of town. It is proposed to install automatic siren, which will cost about \$1,300.

**Lorain, O.**—Chief David E. Hatt, in his annual report, urges purchase of 75-foot aerial truck and pulmotor.

**Doylestown, Pa.**—Fund in Doylestown firemen's campaign for modern fire-fighting apparatus has jumped from \$3,500 to \$5,120.61, and it has been decided to purchase combination chemical auto apparatus for \$7,500.

**Doylestown, Pa.**—Purchase of about 500 ft. of new hose is recommended.

**East McKeesport, Pa.**—Property Committee of Borough Council wishes to purchase light hand hook and ladder truck for fire department, suitable for carrying two double ladders and two babcocks. All communications, with price, should be addressed to O. O. Chew, chairman of Property Committee, P. O. Box 188, East McKeesport, Pa.

**Meadville, Pa.**—Fire Chief Howard Dowdell has submitted recommendations for new auto hook and ladder truck and erection of larger and better equipped fire station at corner of Park Ave. and Center St. Chief recommended that new building be made to face Park Ave. and that it be large enough to house both auto fire truck and proposed hook and ladder truck.

**Philadelphia, Pa.**—Director of Public Safety Porter has made report to Mayor Blankenburg to the effect that equipment of Fire Bureau is alarmingly antiquated, and suggests that sum of \$2,870,000 be spent to modernize it. He suggests that 34 of old type engines be immediately replaced by plunger pump type motor-driven apparatus, at cost of \$350,000; new equipment to cost \$125,000; reconstruction of 19 old engines at cost of \$85,000, and new combination wagons, fuel wagons, and battalion chiefs' cars at total cost of \$320,000. Fireboat to cost \$100,000 is also recommended.

**Philadelphia, Pa.**—New fire alarm system is recommended by Director of Public Safety Porter.

**Pottstown, Pa.**—The Philadelphia Fire Company of Pottstown propose purchasing combination auto engine, chemical and hose apparatus.

**Scranton, Pa.**—Mayor Jermyn has recommended purchase of tractors for fire engines.

**York, Pa.**—Modern fire alarm and police system will be installed.

**Waco, Tex.**—Purchase of automobile fire engine to cost \$6,500 has been authorized.

**Ogden, Utah.**—Upon recommendation of Commissioner T. Samuel Browning, superintendent of public safety, board ordered purchase of combination pump, chemical and hose motor car for fire department, at cost of \$9,000, less \$700, which will be allowed as credit for old steamer which is now being used by department.

**Newport News, Va.**—Unanimous in its opinion that motorized fire apparatus is saving to city, Council Committee on Fire Department and Water has recommended that \$10,000, or so much thereof as may be necessary, be appropriated to motorize Central Fire Department. Committee also hopes to motorize North End department next year.

**St. Johnsbury, Vt.**—Village has decided to purchase motor city service truck at price not to exceed \$6,000.

**Wheeling, W. Va.**—Purchase of motor apparatus is contemplated. It is estimated that entire department can be motorized at about \$75,000. E. T. Rose is Chief.

#### CONTRACTS AWARDED.

**Sound Beach, Cal.**—To George C. Hale Mfg. Co., of Kansas City, Mo., for one motor combination chemical, hose and ladder wagon.

**Stockton, Cal.**—J. C. Skinner and La France Engine Co. were awarded contracts for furnishing city with two com-

bination hose wagons and chemical engines.

**Adrian, Mich.**—To American-La France Fire Engine Co., for one motor triple-combination wagon.

**Norfolk, Va.**—By Board of Control to Gamewell Fire Alarm Company of New York, contract for furnishing city with eight fire alarm boxes and two police signal boxes, at \$125 each.

**La Crosse, Wis.**—To Bi-Lateral Fire Hose Co., of Chicago, contract for 1,000 feet of double-jacketed hose, at \$1 per foot.

#### BRIDGES

**Colusa, Cal.**—Question of voting bonds for erection of bridge across Sacramento River at Grimes and Princeton, and concrete bridge over lowlands between Colusa and Williams, is being considered.

**Escandido, Cal.**—That bridges costing \$18,000 should be installed by supervisors, one at Rincon ford between Valley Center and Pala, and other at Warner ranch ford, between Pala and Santa Ysabel, both being over San Luis Rey River, is being urged by petitions which are being circulated in sections of country directly affected.

**Marysville, Cal.**—Tentative plans for new bridge over Yuba River at foot of D St. In this city, which, if built, will be portion of State Highway, have reached Supervisors. Drawings are by the Portland Pile & Concrete Co. The new D St. bridge will cost in neighborhood of \$125,000 and will be 2,185 ft. long. It is proposed to have new structure 5½ ft. higher than old bridge, which is of wood. Deck will be 4 ft. above highest flood mark. Floor plans call for creosote wood blocks, asphalt, bitumen or other material.

**Napa, Cal.**—At meeting of Board of Supervisors Board received petitions from St. Helena residents for construction of new stone bridge on the County road east of St. Helena. Supervisors voted to construct stone bridge on condition that Trustees of town of St. Helena agree to stand half the expense.

**Bridgeport, Conn.**—Following bond issue has been proposed by Alderman Miller: \$400,000 for a new Stratford Ave. bridge, to be dated July 1, 1914, bearing interest at the rate of 4½ per cent. a year, to be retired at the rate of \$8,000 a year.

**Bridgeport, Conn.**—Following bond issue has been proposed by Alderman Miller: \$130,000 for a new East Washington Ave. bridge, to be dated July 1, 1914, bearing interest at rate of 4½ per cent. a year, to be retired at rate of \$5,000 a year.

**Indianapolis, Ind.**—Urgent pleas for bridge over White River at Sunset Ave., in Washington Township, have been made before County Council by property owners.

**Indianapolis, Ind.**—County Council expects today to authorize bridge bond issue of \$200,000 to be used in building new bridges and repairing others damaged by flood last March.

**Cedar Rapids, Ia.**—City Council is considering erection of \$125,000 bridge and dam from B to F Aves. Hedrick & Cochrane, Kansas City, Mo., are Engineers.

**Salina, Kan.**—Election will be held on February 10 for voting on bond issue of \$4,000 towards construction of cement bridge across Smoky Hill River on Iron Ave.

**Freehold, N. J.**—Erection of bridge over Manasquan River, between present Allen-Osborn drawbridge and bridge at Allenwood is being discussed.

**Long Branch, N. J.**—Engineer has been directed to make plans and specifications of new bridge to be built at Robertsville, near Freehold, while Freeholder Wyckoff had a similar request to make of engineer to make plans and specifications of structure to be built at Matawan Creek. Freeholder Daly had three resolutions requiring attention of engineer all of which were adopted. One was for plans and specifications for new bridge over Parker's Creek, near the Monmouth Park Hotel; second for survey and plans for Riverside Drive road from Oceanic to Cooper's Bridge and third for plans and specifications for bridge over Throckmorton's gully.

**Schenectady, N. Y.**—An entirely new plan in connection with proposed extension of State St. to Scotia, which would include abandoning of that project for number of years and substituting new bridge crossing river diagonally from foot of Governor's Lane to Glenville end of present bridge, has been put forward at meeting at which entire board of state consulting engineers were present.

Board of Engineers recommended that bridge be constructed from foot of Governor's Lane to Glenville end of present bridge, which would be removed, total approximate cost being estimated at \$300,000, less than one-third of the other proposition.

**Syracuse, N. Y.**—Appropriation is petitioned for new bridge over Erie canal in West Genesee St.

**Syracuse, N. Y.**—Widening of bridge over Oswego Canal is being planned.

**Piqua, O.**—County Commissioners have awarded \$90,000 of bridge and road emergency bonds to Hoehtler, Cummings & Pruden, of Toledo.

**Toledo, O.**—Board of County Commissioners of Lucas County, Ohio, will sell to highest responsible bidder \$90,697.67 of county's bonds, at its office in Toledo, on Friday, the 6th day of February, 1914, and sealed bids will be received by County Auditor for purchase of said bonds up to 10 a. m. of said date. Bonds are issued to provide fund for purpose of constructing and keeping in repair necessary bridges and approaches or ways thereto throughout county. C. T. Sanzenbacher is Auditor.

**Monocacy, Pa.**—A new concrete bridge will probably be erected over Schuylkill River at Monocacy, to take place of old iron structure.

**Chattanooga, Tenn.**—Question of repairing Walnut St. bridge has become live one and bids fair to reach interesting point by time County Court meets on Jan. 26, when resolution authorizing bond issue of not to exceed \$100,000 for repairs on this bridge will be taken up for final action.

**Cookeville, Tenn.**—Work will begin at once upon construction of new county bridge across Falling Water creek at Brown's Mill, five miles southeast of this city. Bridge will cost about \$1,500. One thousand dollars of cost will be borne by county and balance by citizens living in vicinity of proposed bridge.

**Nashville, Tenn.**—Viaduct will be constructed on Charlotte pike.

**Dallas, Tex.**—Plans for active campaign in favor of viaduct and bridge bond issue are being discussed.

**San Angelo, Tex.**—County Commissioners of this county have engaged B. F. Davis, a Fort Worth engineer and architect, to prepare plans and specifications for construction of bridge to cost about \$6,000 to span South Concho River near Christoval. Commissioners hope to be able to have work of constructing bridge started within less than thirty days.

**Waco, Tex.**—Taxpayers will vote on Feb. 16 on \$50,000 bond issue for bridges.

**Seattle, Wash.**—Councilman Brushevith introduced ordinance proposing to submit to people on March 3 question of becoming indebted in sum of \$1,750,000 for purpose of constructing bridge across Lake Washington Canal and over the West Waterway. So far Council has by resolution favored bridges at 15th Ave. Northwest, Fremont Ave., 6th Ave. Northeast, Montlake Blvd. and on Spokane Ave. over the West Waterway.

#### CONTRACTS AWARDED.

**St. Augustine, Fla.**—To Seth Perkins contract for construction of San Sebastian bridge.

**Joplin, Mo.**—To O'Hagan & Lake, Kansas City, Mo. contract for Broadway viaduct at their bid of \$96,133.

**Camden, N. J.**—By Board of Chosen Freeholders of Camden County, for erection of bridge over Newton Creek, to Kelley-McFeeley Construction Co., Camden, at \$61,400.

**Columbus, O.**—To Franklin County Commissioners, following contracts for Big Darby bridge on Harrisburg Road: Substructure, to J. D. Gillespie, La Rue, at \$15,420; superstructure, to E. M. Schully, at \$12,300; approaches to Capital Construction Co., at \$2,816.

**Toledo, O.**—Acting upon advice of City Solicitor Thurstin, Board of Control has annulled contract for repair of Western Ave. bridge over canal, awarded under old Board of Control to Wynkoop & McGormley, Toledo, and decided to readvertise for bids on ground that former contract was illegal, since money to pay for improvement was not in city treasury. Mr. Boardman said that new bids will be advertised for as there is now money on hand to pay for the work.

**Pittsburgh, Pa.**—To Charles Vero, Bellevue, Pa., contract by Co. Comrs. for bridge No. 1 over Dry Run, at \$5,447.

**Aberdeen, S. D.**—By Board of Commissioners of Brown County, for erection of six new bridges in county, to Minneapolis Steel & Machinery Co., at \$11,215.

**Fort Worth, Tex.**—Contract has been awarded for constructing the new 9-

mile bridge to El Paso Iron & Bridge Co., at \$15,945.

**Houston, Tex.**—City Council has passed ordinance ratifying contract entered into between city and H. C. Glass for construction of Capitol Ave. bridge and carrying appropriation of \$165,000. On account of important changes bridge will cost more than at first expected.

**San Antonio, Tex.**—By Comrs. Court of Bexel Co. to John C. Kelley for construction of concrete bridge on Palo Alto Rd. across Leon river, at \$12,747.65.

**Holcombe, Wis.**—By town of Holcombe contract to Continental Bridge Co., Chicago, at \$2,574, for constructing concrete bridge.

### MISCELLANEOUS

**Anaheim, Cal.**—Election will be held January 27 for voting on \$20,000 bond issue for city park.

**Colusa, Cal.**—There will be special meeting of Board of Supervisors for purpose of calling election on question of voting bonds for erection of new Hall or Records and bridge across Sacramento River at Grimes and Princeton, as well as concrete bridge over lowlands between Colusa and Williams.

**San Bernardino, Cal.**—Plans is being considered by Supervisors for establishment by county of large rock-crushing plant in mouth of Cajon pass, to supply rock for county highways to be constructed under coming bond issue, and to be operated by county jail prisoners.

**San Diego, Cal.**—It has been practically decided by Council to order construction of comfort station on the Plaza.

**San Francisco, Cal.**—Special election has been held in San Francisco on question of issue of \$8,800,000 of bonds to erect city hall and to create civic center. By large majority proposition was carried.

**Bridgeport, Conn.**—Progress is being made on securing of information regarding incinerating plant for destruction of garbage.

**Bridgeport, Conn.**—Alms house bonds in sum of \$175,000 have been approved by electors of city.

**Denver, Colo.**—Whether city of Denver shall issue \$3,000,000 in bonds to finance construction of tunnel for Moffat road through James Peak, in Rockies, will be decided at special election.

**Washington, D. C.**—A municipal lodging house to cost in neighborhood of \$100,000 may be provided for in bill to be sent to Congress by District Commissioners during present session.

**Washington, D. C.**—A bill authorizing purchase of property known as Belmont lying between 13th and 14th Sts. and Belmont and Clifton Sts., northwest, to be used as public park, has been introduced in Senate by Senator Works of California. It is provided that \$180,000, or as much thereof as is necessary, shall be expended in purchase of property.

**Tampa, Fla.**—Plans have been accepted for new city hall.

**Alton, Ill.**—Ordinance calling for submitting of question of bond issue for new city hall and new fire house in Upper Alton, at April election, will be presented at regular meeting of city council.

**Chicago, Ill.**—Beach commission of city council has agreed upon plans for bathing beach to cost \$330,000, with frontage of 735 feet, and built along north shore.

**Chicago, Ill.**—Erection of three police stations for women and several substations is recommended.

**Chicago, Ill.**—Council Finance Committee has appropriated \$1,078,000 for garbage disposal. This provides for two incinerator plants and complete remodeling of plant of Chicago Reduction Co. City Waste Commission has instructed Henry A. Allen to prepare estimate of cost of installing Atlas dryers in plant of reduction company, and also in separate stations to care for the disposal of garbage.

**Indianapolis, Ind.**—Dr. Henry Jameson, president of Board of Park Commissioners, has discussed informally with Board of Public Works question of city bond issue to assist in defraying cost of building retaining wall along south bank of Fall Creek, from College Ave. to 30th St. No action was taken in the matter. It has been estimated that wall will cost approximately \$80,000. Park Board suggests that \$50,000 of cost be met by bond issue, that board pay from its fund \$10,000 and that remainder be met by assessment on property that would be benefited by wall.

**Mound City, Ind.**—O. G. Overcash, president, wants information regarding weed killer, macadam road binders, meter and hydrant seals, road machines, concrete

sewer tile, pumps and buckets for cleaning catch basins.

**Richmond, Ind.**—Council will be asked by Board of Police Commissioners to make appropriation for purchase of five-passenger touring car for use by police department.

**South Bend, Ind.**—Extensive plans for park work are being considered by commissioners.

**Lane, Kan.**—Citizens have voted in favor of purchase of land for park purposes.

**Sharon Springs, Kan.**—Board of County Commissioners of Wallace County have called special election on February 24 to vote on proposition of issuing bonds in sum of \$30,000 for construction of new court house, etc.

**Henderson, Ky.**—Common Council has decided that hereafter city shall do its own scavenger work, including removal of garbage. Number of horses and necessary wagons and implements will be bought.

**Augusta, Me.**—State Highway Commission has voted to purchase eight convertible traction rollers and 48 five-ton dump cars with which to carry on its road building operations all over State. Delivery of these will begin on Feb. 25 and all of them will be available in time for beginning of highway construction in spring.

**Boston, Mass.**—Plans have been submitted for municipal building to cost \$261,500.

**St. Joseph, Mich.**—Plans have been accepted for erection of \$30,000 city hall.

**Omaha, Neb.**—Council has passed ordinance calling election to vote on \$100,000 bond issue for construction of two garbage incinerators.

**Nashua, N. H.**—The annual appropriation budget of Nashua police commissioners will probably carry provision for purchase of motor-driven patrol wagon.

**Asbury Park, N. J.**—Purchase of city safe has been authorized.

**Millville, N. J.**—At joint meeting of City Commission, Municipal League and taxpayers, following appropriations were recommended, money to be raised by bond issue: Changes at sewer bed, \$2,000; City Hall vault, \$3,000; police and fire alarm system, \$2,200; West Side fire house, \$1,000; auto chemical and hose cart, \$5,000; improved roads, \$10,000. Action on proposed new storm sewer at cost of \$10,000 was deferred.

**Newark, N. J.**—City Controller Tyler Paruly of Newark has sold at auction \$3,876,000 worth of Newark municipal bonds. Highest price paid was 105.22 for \$400,000 of dock and meadow bonds, Rhoads & Co. being purchasers. Same firm bought \$100,000 watershed extension bonds at 104.50. Estabrook & Co. and Remick, Hodges & Co., bidding jointly, took \$2,200,000 refunding bonds, \$876,000 school construction bonds and \$200,000 water main extension bonds at 103.37. Buyers are all New York houses.

**Newark, N. J.**—Market bonds in sum of \$700,000 have been awarded to Adams & Co., of Boston.

**Perth Amboy, N. J.**—Board of Aldermen has decided to appropriate \$1,000 for use of Harbor Board.

**Binghamton, N. Y.**—Another long step toward construction of First Ward dyke has been taken when option was obtained by Commissioner of Public Works Winsor on island, which it is proposed to remove from Chenango River.

**Buffalo, N. Y.**—The finance committee of aldermen has decided to report in favor of bond issue for construction of refuse plant near Massachusetts Ave. dumping station at cost of \$100,000, the disposal of refuse at \$50,000, the collection of ashes and garbage at \$75,000 and cleaning of streets at cost of \$35,000.

**Interlaken, N. Y.**—It has been voted to purchase safes for public documents.

**Kingston, N. Y.**—City is in the market for combination ambulance and police patrol wagon.

**Lockport, N. Y.**—Mayor has recommended erection of new City Hall.

**Lockport, N. Y.**—Common Council has authorized City Clerk to advertise for bids for erection of garbage incinerating plant to cost about \$20,000.

**Niagara Falls, N. Y.**—Building of proposed city hall is being considered.

**Syracuse, N. Y.**—F. M. Westcott recommends that city purchase dumping ground or that four stations be established for loading ashes and refuse on cars to be shipped outside of city.

**White Plains, N. Y.**—Board of Supervisors has voted to direct County Treasurer Burling to issue \$128,000 in certificates to pay county's share for land so taken by Bronx Valley Parkway Commission.

**Goldsboro, N. C.**—Board of Aldermen has accepted bid of Tillottson & Woolcott Co., of Cincinnati, for \$80,000 of

\$103,000 municipal improvement bond issue at par, on which they agreed to pay a premium of \$570 and accrued interest at time of delivery. Remaining \$23,000 of the issue will be sold later.

**Wilmington, N. C.**—City Council has adopted resolution calling election to decide question of bond issue of not exceeding \$150,000, to be used in acquiring municipal docks and wharves and fixing March 5 as date for election.

**Akron, O.**—Bonds in sum of \$9,000 will be issued for improving of Cuyahoga River water front.

**Akron, O.**—Large bond issue may be asked for perfecting park system.

**Dayton, O.**—New ordinance will be drafted for taking care of garbage contract for which bids have been received.

**Lawton, Okla.**—City Commissioners has called special election for Feb. 19 to vote on granting to Lawton Railway & Lighting Co. a 21-year franchise. This company proposes to construct street car line connecting Fort Sill and Medicine Park with Lawton.

**Salem, Ore.**—Municipal garbage incinerator is recommended by Mayor Steeves. Estimated cost, \$15,000. Walter Skelton is City Engr.

**Erie, Pa.**—Council will be asked probably in near future to spend \$25,000 for park purposes.

**Harrisburg, Pa.**—Bids for equipment of experimental laboratory of State Highway Department have been received and are now under consideration. Award of contract will be made in near future and experimental work will be undertaken as soon as necessary apparatus has been installed.

**Oil City, Pa.**—At adjourned meeting of new Councils sale of permanent improvement bonds in sum of \$40,000 to Gordon & Co., of Pittsburgh, was ratified.

**Philadelphia, Pa.**—Director Porter recommends new police and fire houses, to cost \$1,000,000.

**Philadelphia, Pa.**—Improvements in Electrical Bureau, including new police and fire signal systems, are recommended by Director Porter.

**Philadelphia, Pa.**—Expenditure of \$235,000 in Bureau of Police is needed for police boats and patrol boats, new patrol wagons and House of Correction vans.

**Philadelphia, Pa.**—Petitions asking transfer of \$1,500,000 of municipal loan to Park Commission for convention hall in Fairmount Park have been liberally signed at meeting of Northwest Business Men's Association, held at 2336 Columbia Ave.

**Seranton, Pa.**—Mayor Jermyrn recommends purchase of police patrol auto and auto truck for bureau of garbage.

**Seranton, Pa.**—Purchase of new and modern road machine has been recommended by Mayor Jermyrn.

**South Bethlehem, Pa.**—In his message to City Council Mayor Walter advocated paid fire department, municipal ownership of electric light plant, competent building inspector, more permanent street improvement and gradual redemption of municipal bonds.

**York, Pa.**—Modern police and fire alarm system will be installed.

**Spartanburg, S. C.**—Erection of municipal building is being discussed.

**Providence, R. I.**—The Metropolitan Park bond issue of \$300,000, approved by electors in November, 1912, will be sold by public subscription on Jan. 28.

**Warren, R. I.**—It is expected that Warren municipal ice plant will be established as soon as necessary details can be arranged.

**Jackson, Tenn.**—Taxpayers will vote on \$65,000 bond issue for erection of new city hall.

**Houston, Tex.**—Plans are being drawn for erection of annex to City Hall to cost about \$150,000.

**Orange, Tex.**—Election is being considered for voting on bonds with which to build new city prison and new city hall.

**San Antonio, Tex.**—Bexar County's bond issue of \$1,000,000 has been sold to W. R. Compton & Co. Actual work on improving roads, bridges, courthouse, building county hospital in all probability will not begin until county has received at least first installment of bond money.

**Waco, Tex.**—At adjourned session of City Commission Feb. 16 was fixed as date for next city bond election. Property taxpayers will then decide whether they favor issuing bonds in sum of \$350,000, divided as follows: Public school, \$150,000; bridges, \$50,000; storm sewers, \$15,000; sanitary sewers, \$10,000; permanently paved streets, \$65,000; parks, \$60,000.